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THE

EDINBURGH
MEDICAL AND SURGICAL
JOURNAL:

EXHIBITING

A CONCISE VIEW

OF THE

LATEST AND MOST IMPORTANT DISCOVERIES

IN

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The following Publications have been received:—

Topography of Assam. By John M'Cosh, Officiating Second Assistant Surgeon General Hospital, &c. Printed by Order of Government. Calcutta, 1837, large 8vo. Pp. 166.

A Dictionary of Practical Medicine, comprising General Pathology, the Nature and Treatment of Diseases, Morbid Structures, &c. By James Copland, M. D. F. R. S. &c. Part V. Heart—Infection. London, 1838.

Elements of Physiology. By J. Muller, M. D. Professor of Anatomy and Physiology in the University of Berlin, &c. Translated from the German. By William Baly, M. D. &c. Part III. containing the Nervous System. London, 1838. P. 591 to p. 848.

Practical and Experimental Chemistry adapted to Arts and Manufactures. By E. Mitscherlich, Professor of Chemistry in the University of Berlin. Translated from the first portion of his Compendium. By Stephen Love Hammick, M. D. Fellow of the Royal College of Physicians. London, 1838. 12mo. Pp. 316.

A Treatise on Inflammation. By James Macartney, M. D. F. R. S., F. L. S. &c. London, 1838. 4to. Pp. 214.

Flora Medica; a Botanical Account of all the more Important Plants used in Medicine in Different parts of the World. By John Lindley, Ph. D. F. R. S., &c. London, 1838. 8vo. Pp. 665.

Medico-Chirurgical Transactions, published by the Royal Medico-Chirurgical Society of London. Second Series. Vol. the Third. XXI. of Original Series. London, 1838. 8vo. Pp. 450.

First Principles of Medicine. By Archibald Billing, M. D. A. M. &c. 3d Edition, considerably enlarged and improved. London, 1838. 8vo. Pp. 282.

Observations on the Management of Madhouses, illustrated by Occurrences in the West Riding and Middlesex Asylums. By Caleb Crowther, M. D. London, 1838. 12mo. Pp. 145.

The Science of Cerebro-Spinal Phenomena attempted, by John S. Waugh, M. D. Annan. London, 1838. 12mo. Pp. 172.

The Third Fasciculus of Anatomical Drawings, selected from the Collection of Morbid Anatomy in the Army Medical Museum at Chatham. Drawn on Stone by Waterhouse Hawkins. London, 1838. Folio. 10 Engravings.

A Catalogue of the Collection of Mammalia and Birds in the Museum of the Army Medical Department at Fort Pitt, Chatham. Chatham, 1838. 8vo. Pp. 48.

General View of the sources of Difficulty and Fallacy in Diagnosis. (Being the Article Practice of Physic from the 7th Edition of the Encyclopædia Britannica.) By William Thomson, M. D., F. R. C. Physicans. 4to. Pp. 22.

General View of the Proximate Causes of Diseases, Organic and Dynamic. Being the Article General Pathology, from the 7th Edition of the Encyclopædia Britannica. By William Thomson, M. D., F. R. C. Physicians and Surgeons, Edinburgh. 4to. Pp. 18.

Appendix to the Catalogue of the Library of the Army Medical Department; in continuation from 9th May 1833, to 21st February 1838. 8vo. Chatham, 1830. Pp. 86.

The Structure, Diseases, and Treatment of the Teeth, considered with a view to the Abolition in all common cases of the pernicious practice of Tooth-Drawing. By William Wardroper, M. R. C. Surgeons, London. London, 1838. 8vo. Pp. 59.

Medical Portrait Gallery. Biographical Memoirs of the most celebrated Physicians, Surgeons, &c. who have contributed to the advancement of Medical Science. By Thomas Joseph Pettigrew, F. R. S., &c. London and Paris. Part 6. Sir A. Cooper, Dr Copland, Dr Cooke, Dr Mead.—Part 7. Dr W. Hunter, Dr Jenner, Dr Baron.

Counter-Irritation, its Principles and Practice, illustrated by one hundred Cases of the most Painful and Important Diseases, effectually cured by external applications. By A. B. Granville, M. D., F. R. S., &c. London, 1838. 8vo. Pp. 353.

A Treatise on Neuralgia. By Richard Rowland, M. D., Member of the Royal College of Physicians. London, 1838. 8vo. Pp. 173.

A General Outline of the Animal Kingdom. By Thomas Rymer Jones, F. Z. S., Professor of Comparative Anatomy in King's College, London. Part I. Pp. 48. London, 1838. 8vo.

Practical Observations on Hysteria, especially relating to its Organic Character. By John Pritchard, Member of the Royal College of Surgeons, London; and Surgeon to the Leamington Hospital. Leamington, 1838. 8vo. Pp. 36.

On Necrosis; being an Experimental Inquiry into the Agency ascribed to the Absorbents, in the removal of the sequestrum, &c. By George Gulliver, Esq. Assistant Surgeon Royal Horse Guards. 8vo. Pp. 9.

A Practical Treatise on the Management of Diseases of Children. By Richard T. Evanson, M. D., &c. Professor of Medicine in the Royal College of Surgeons, Ireland; and Henry Maunsell, M. D. Professor of Midwifery in the Royal College of Surgeons, Ireland. Second Edition, enlarged. Dublin, 1838. 8vo. Pp. 483.

On Urinary Diseases, their Consequences and Treatment. By Robert Willis, M. D., &c. London, 1838. 8vo. Pp. 408 and 22.

An Experimental Essay on the Physiology of the Blood; for which a Gold Medal was awarded by the Medical Faculty of the University of Edinburgh. By Charles Maitland, M. D., Brighton. Edinburgh, 1838. 8vo. Pp. 90.

The Medico-Chirurgical Review and Journal of Practical Medicine, Edited by James Johnson, M. D., &c. and Henry James Johnson, Esq., &c. New Series, No. 57, July 1838.

The Transactions of the Provincial Medical and Surgical Association. Instituted 1832, Part II. Volume VI. London and Worcester, 1838. 8vo. Pp. 621.

The London Medical Gazette for the Session 1837. New Series, 1838. No. 38, 16th June 1838, to No. 51, 15th September 1838.

The Medical Examiner, No. 10, Vol. i. Philadelphia, Wednesday, May 9, 1838.

Comptes rendus Hebdomadaires des Seances de l'Academie des Sciences, par MM. les Secretaires Perpetuels. Premier Semestre. No. 19, 7th May.—No. 26, 23d Juin. Second Semestre, No. 1, 2d Juillet.—No. 7, 13th Aout.

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A Series of Anatomical Sketches and Diagrams, with Descriptions and References. By Thomas Wormald, Assistant-Surgeon, and Demonstrator of Anatomy at St Bartholomew's Hospital, and Andrew Melville M'Whinnie, Teacher of Practical Anatomy at St Bartholomew's Hospital. Part I. 4to. Five Plates, London, 1838.

Memoire sur les Causes Generales des Syphilides, et sur les Rapports qui existent entre ces affections Cutanées et les symptoms primitifs de la Maladie Venerienne, lu à l'Academie de Medecine, le 4 October 1836. Par C. F. Martins, D. M. Paris, 1838. 8vo. Pp. 110.

Experiments and Observations on the Gastric Juice and the Physiology of Digestion. By William Beaumont, M. D., Surgeon in the United States Army. Reprinted from the Plattsburgh Edition, with Notes. By Andrew Combe, M. D. Fellow of the R. C. of Physicians Ed. &c. Edinburgh, 1838. 8vo. Pp. 319.

Medical Portrait Gallery. To be continued monthly. Each Part containing three Portraits, Biographical Memoirs of the most celebrated Physicians, Surgeons, &c. &c. who have contributed to the advancement of Medical Science. By Thomas Joseph Pettigrew, F. A. S., F. S. A. F. L. S., &c. Part I. II. III. and IV. London and Paris. Royal octavo.

Buxton and its Waters. An Analytical Account of their Medicinal Properties and General Effects. By William Henry Robertson, M. D., Physician to the Buxton Bath Charity. London, 1838. 12mo. Pp. 147.

Traité Anatomique Physiologique et Pathologique du Systeme Pileux, et en particulier des Cheveux et de la Barbe; par M. P. P. Boucheron, D. M. de la Faculté de Paris. Paris, 1837. 8vo. Pp. 156.

Third Report of Inspectors of Prisons, III. Southern and Western District Presented to both Houses of Parliament by Command of Her Majesty. London, 1838. Folio, Pp. 120.

Germany; the Spirit of her History, Literature, Social Condition, and National Economy, illustrated by reference to her Physical, Moral, and Political Statistics, and by Comparison with other Countries. By Bisset Hawkins, M. D. Oxon. F. R. S. F. R. C. Physician, Inspector of Prisons, &c. London, 1838. 8vo. Pp. 475.

A Practical Compendium of the Materia Medica, with numerous Formulae adapted for the treatment of the Diseases of Infancy and Childhood. By Alexander Ure, M. D. &c. London, 1838. 12mo. Pp. 221.

Animal Magnetism and Homœopathy. By Edwin Lee, M. R. C. S. Second Edition, considerably enlarged, with notes illustrative of the Influence of the Mind on the Body. London, 1838. 12mo. Pp. 98.

Elements of Anatomy. By Jones Quain, M. D., 4th Edit. revised and enlarged. Illustrated with Steel Plates, &c. Part III. P. 699 to p. 910, concluding the volume.

The British and Foreign Medical Review, or Quarterly Journal of Practical Medicine and Surgery. Edited by John Forbes, M. D., and John Conolly, M. D. No. X. April 1838.

The Continental and British Medical Review, or Monthly Therapeutical Journal. Edited by A. M. Bureaud Riofrey, M. D. No. XV. May 1838. No. XVI. June 1838.

The Quarterly Journal of the Calcutta Medical and Physical Society. Edited by the Secretaries, Henry Hurry Goodeve, M. D. and William B. O'Shaughnessy, M. D. No. III. 21st July 1837. Calcutta, No. IV. 4th December 1838. Calcutta.

The American Journal of the Medical Sciences. No. XLII. February 1838. Philadelphia.

The Medico-Chirurgical Review and Journal of Practical Medicine. Edited by James Johnson, M. D and Henry James Johnson, M. D. New Series. No. 55, January 1838; and No. 56, April 1838. London, 1838.

The London Medical Gazette for the Session 1837-38. No. 26, 24th March 1838, to No. 37, 9th June 1838.

Comptes Rendus Hebdomadaires des Seances de l' Academie des Sciences. Par MM. Les Secretaires Perpetuels. Premier Semestre. No. 9. Fevrier; No. 10. May 1838.

THE

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MEDICAL AND SURGICAL JOURNAL.

1. JULY 1838.

PART I.

ORIGINAL COMMUNICATIONS.

Art. I.—*Observations on the Fluid in the Vesiculæ Seminales of Man.* By John Davy, M. D., F. R. S., Assistant Inspector of Army Hospitals.

I believe I am justified in saying, that, respecting the nature of the fluid of the *vesiculæ seminales,* there is still a difference of opinion amongst physiologists, especially in this country, where the authority of John Hunter is necessarily very high and influential.

The difference of opinion alluded to is, whether the fluid in question is secreted by the testes, or by the vesiculæ; and whether, in consequence, the vesiculæ are to be viewed chiefly as reservoirs or merely as glands.*

Conceiving that some light may be thrown on the subject by the examination of the fluid in the vesiculæ and in the *vasa deferentia*, after death, in a variety of cases, I have availed myself of such opportunities as have offered in the General Military Hospital, at Fort Pitt, under my superintendence,—and I now beg leave to communicate the results, believing that they may aid in settling the disputed question,—and also with the hope, that they may be found not entirely devoid of interest in connection with an obscure branch of pathological inquiry.

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* Vide Dr Bostock's Elements of Physiology, Vol. iii. p. 7, and foot-note, where the question is left unsettled by the learned author. He thus expresses himself on the subject:—"Besides the testes, the *vesiculæ seminales*, both from their size and their situation, have been supposed to perform some important part in the function of generation, although it has been difficult to ascertain the exact nature of the purpose which they serve. The opinion formerly entertained was, that they are merely reservoirs, in which the semen is deposited as it is secreted. In consequence, however, of the observations of Hunter, who remarked that the fluid contained in these cavities appeared to be different from that found in the testes, many of the later anatomists have supposed that the *vesiculæ seminales* produced a secretion of a peculiar nature, the use of which may probably be to dilute the semen, or to add to its bulk."

It will be necessary for this double purpose to prefix in each instance a slight notice of the fatal case. I shall make no selection of cases; they will be given nearly in the order as to time in which they occurred. And I may remark, that, as every fatal case was subjected to a *post mortem* examination, according to the usage of the hospital, these brought forward (the total deaths from the 22d September of the present year to the 6th December) afford a tolerably correct example of the general mortality of this hospital,—the patients in which are chiefly invalids labouring under chronic diseases, incapacitating them for farther military service.

1. Aged 30, previously labouring under pulmonary disease and an impaired constitution, was admitted with pneumonia, and died on the third day. On dissection, thirty-nine hours after death, the inferior lobe of the right lung was found hepatized, weighing nearly three pounds, the superior and middle only half a pound. There was a tubercular excavation and numerous tubercles in the left lung,—and small cavities and a pretty distinct cicatrix of a vomica in the upper part of the superior lobe of the right lung. The body was not emaciated.

The *vasa deferentia* and *vesiculæ seminales* were removed six hours after death. About a drop of fluid was obtained from each *vas deferens*, which accorded in appearance with the received description of the spermatic fluid. Examined with the microscope, using an object-glass of one-eighth inch focal distance, constructed by Ross, it was found to contain numerous animalcules, some of them in active motion. The vesiculæ contained a considerable quantity of fluid. Some of it was collected after six hours; another portion later, after forty-two hours. The former did not appear to me to differ from the fluid of the *vasa deferentia*. It abounded in spermatic animalcules, some of which were alive and active: on standing a few hours it separated into two parts, one opaque that had subsided, the other transparent; and this was copiously precipitated by alcohol, and rendered of a consistence almost gelatinous. The last collected had a brownish tinge; it, too, abounded in animalcules; but they were motionless and dead; warmth had no effect in reanimating them.

2. Aged 57; a violent maniac, who died thirteen days after admission; the disease of about a fortnight's duration; a third at-

tack. The dissection was made fifty-seven hours after death. The body was much emaciated. The lateral ventricles of the brain were greatly distended with fluid ; they communicated freely,—the *septum lucidum* having been destroyed by disease. No other well-marked lesion was discovered.

A very minute portion of fluid was obtained from the *vasa deferentia.* It was of the colour, and very much of the appearance and consistence of pus. It contained very many spermatic animalcules—all dead. The fluid from the vesiculæ was small in quantity, browner than that from the duct, as if slightly tinged by the colouring matter of blood. It contained vestiges in abundance of spermatic animalcules, and a few of distinct form.

3. Aged 39 ; died of pulmonary consumption, complicated with pneumothorax of the right side and empyema.* The dissection was made thirty-six hours after death. The body was much emaciated. Besides the disease in lungs, the ileum in its inferior part was severely ulcerated, and the cæcum slightly. There had been diarrhœa in the last stage of the disease.

The *vasa deferentia*, and the *vesiculæ seminales*, were removed and examined six hours after death. The contents of the latter were small in quantity, and of nearly gelatinous consistence. The fluid of the ducts was more liquid, and nearly of its usual cream or purulent-like appearance. In neither of them could any animalcules be discovered, or even vestiges of them, or any distinct globules.

4. Aged 20 ; died of pulmonary consumption. Extreme debility and emaciation marked the last stage of the disease, in which diarrhœa and night-sweats alternated. The dissection was made twelve hours after death. No notable lesion was detected independent of the pulmonary disease, which was vast and various,—a complication of tubercles and cavities, of œdema and hepatization. The intestines were not ulcerated.

The vesiculæ and *vasa deferentia* were examined eleven hours after death. The former contained a small quantity of fluid, which was brownish, thick, and slightly viscid,—the latter an extremely minute portion, like thin starch. In both, under the microscope, there appeared, as it were, the fragments of animalcules and numerous globules.

5. Aged 32 ; died of latent pulmonary consumption, after having been a patient in the lunatic asylum of the establishment about a month. The dissection was made fourteen hours after death. The body was much emaciated. Besides tubercles in dif-

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* In this case, as in every other of pneumothorax which I have yet examined, the air in the pleura was derived from the atmosphere through a valvular ulcerated opening in the lung.

ferent stages, and excavations in the lungs, and partial hepatization, there was little other organic disease. Diarrhœa had not preceded death; there were, however, some small ulcers in the colon, and marks of old ulcers healed.

The vesiculæ and the *vasa deferentia* were examined sixteen hours after death. A small drop of fluid was obtained from the latter, of cream or purulent-like appearance, which abounded in seminal animalcules. The vesiculæ were moderately turgid; the fluid in them was also opaque, white, like purulent matter, and abounded in animalcules. The animalcules in each instance were dead. Neither fluid changed the colour of litmus or of turmeric paper.

6. Aged 39; died of gangrene of the superior lobe of right lung, complicated with effusion into the pleura, and with ascites. There were sixty-one ounces of turbid serum in the right pleura, and seven pints of serum in the cavity of the abdomen. The liver, spleen, and pancreas were denser than natural; the weight of the liver was only two and a-half pounds. There was a large ulcer in the cæcum, and numerous marks of old ulcerations healed in the colon and rectum. Chronic dysentery preceded the fatal disease. The dissection was made twenty-eight hours after death.

The right *vas deferens* was examined two hours after death, and the vesiculæ half an hour later. A small drop of fluid was obtained from the seminal duct. It resembled in appearance the purest purulent matter: it had no distinct smell; it rendered turmeric paper slightly brown. Under the microscope it appeared to consist chiefly of minute globules, very much smaller than those of purulent matter, and to be entirely destitute of animalcules. The vesiculæ were so shrunk and collapsed, that difficulty was experienced in collecting sufficient fluid even for microscopic examination. No animalcules could be detected in it, and no distinct globules. It was colourless and not viscid,—more like serum than mucus; and it was alkaline, and changed distinctly the colour of turmeric paper.

7. Aged 42; of twenty years military service; died of pulmonary consumption. The dissection was made thirty-seven hours after death. The body was much emaciated. The lungs weighed five pounds. Besides tubercular excavations and a vast quantity of tubercles in different stages of progress, there was partial œdema of the lungs and hepatization. There were large ulcers in the jejunum, ileum, and colon; diarrhœa did not precede death. The prostrate gland contained a sinus, which opened into the neck of the bladder. The testes were adhering to the *tunicæ vaginales;* and the substance of the right testis was partially indurated, as if from the effect of common inflammation.

The *vesiculæ seminales* were moderately distended with fluid, of a light brownish hue, slightly turbid and opaque. It abounded in well-formed spermatic animalcules, and contained a few blood corpuscles, or particles extremely like them. It had no effect either on turmeric or litmus paper. An extremely small portion of fluid was obtained from one of the *vasa deferentia*, which, in appearance, was very like that of the vesiculæ. Under the microscope, a few animalcules were seen in it, many blood corpuscles and some smaller particles.

8. Aged 32; died of bronchitis, complicated with hepatization of right lung, and an aneurism of the arch of aorta pressing on the trachea. The dissection was made thirty-two hours after death. The body was not emaciated. The bronchia were nearly filled with muco-purulent matter. The right lung weighed three pounds; the greater part of it was hepatized in different degrees, and it contained a few clusters of granular tubercles. No well-marked lesion could be discovered in the abdominal viscera.

The vesiculæ were moderately distended with fluid of purulent-like appearance, which abounded in seminal animalcules. The fluid obtained from a *vas deferens*, extremely minute in quantity, was found to contain a few animalcules, and very many particles smaller than those of the blood.

9. Aged 33; died of pulmonary consumption. The dissection was made fifteen hours after death. The body was sub-emaciated. Besides numerous tubercles in different stages of progress and several caverns in the lungs, there was partial œdema and hepatization of them. The liver weighed six and a half pounds, and contained some fatty matter. There were no dropsical symptoms. There were numerous ulcers in the ileum and colon. There had been no diarrhœa.

A small quantity of fluid was found in the vesiculæ, of a brownish hue and semi-opaque. It did not change the colour of turmeric or of litmus paper. It abounded in spermatic animalcules. The very little fluid procured from a *vas deferens* was like dilute purulent matter in appearance; it contained a few animalcules, and very many minute globular particles.

10. Aged 20; died of pulmonary consumption. The dissection was made twenty-six hours after death. The body was much emaciated. Both lungs abounded in tubercles, had a large excavation in each superior lobe, and contained many small vomicæ, and the right lung in addition was extensively hepatized. There was extensive superficial ulceration of the larynx and trachea. The ileum and colon were deeply as well as extensively ulcerated. The *appendicula vermiformis* was perforated by ulceration, and through the medium of a sinus communicated with the colon by an ulcerated opening. There were thirteen ounces of a mixture

of purulent matter and serum in the cavity of the pelvis. Severe diarrhœa and tormina preceded death.

The *vesiculæ* and *vasa deferentia* were examined four hours after death. The former afforded only a small quantity of fluid; what was first pressed out, was like thin starch in appearance; what was last expressed was gelatinous. The former, under the microscope, was found to contain many animalcules, mixed with globular particles and small masses of mucus. The latter contained very few animalcules, and consisted chiefly of mucus. The fluid from *vas deferens* was very like that which flowed first from the vesiculæ, excepting that it was without any tint of brown which that fluid possessed. Under the microscope, only one animalcule, perfect in form, could be detected; fragments of others, as it were, appeared, and some globules, and a good deal of transparent mucus in minute masses. * The fluid of *vesiculæ* and *vas deferens* was distinctly alkaline; each changed the colour of turmeric paper.

11. Aged 27; died of pulmonary consumption. The dissection was made ten hours after death. The body was much emaciated. The lungs were enormously diseased; besides containing large cavities and many vomicæ, and a vast quantity of tubercles in different stages of progress, they were partially œdematous and hepatized. There were a few ulcers in the ileum, and a thickened granular and partially ulcerated state of the rectum. There had been diarrhœa in the last stage of the disease.

Very little fluid was found in the *vesiculæ seminales*. It was partly thin, of a light brownish hue; and partly thick and gelatinous, the latter from the fundus, the former from the anterior portion. Under the microscope, a few spermatic animalcules were detected in the thin fluid, mixed with what appeared to be fragments of them. No animalcules were observed in the gelatinous fluid; it seemed to consist principally of mucus. Neither fluid had any effect on turmeric paper. From the *vas deferens* hardly sufficient fluid could be procured, even for microscopic examination. It contained a few minute globular particles without any animalcules.

12. Aged 33, died of diffuse cellular inflammation of neck, with suppuration of the cervical glands. The dissection was made twenty-six hours after death. A superficial cavity was found in the cerebrum, under the posterior part of right parietal bone, which contained about a drachm and half of fluid, which became turbid on the addition of nitric acid. There had been no suspicion of cerebral disease during life. The cellular tissue of the

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* In this and every other instance the *vas deferens* was removed for examination, before entering the cavity of the abdomen; the cord was laid bare, the duct separated, and a ligature applied previous to dividing it.

neck generally was saturated with thick purulent matter; and most of the cervical glands were diseased and contained abscesses. The right sterno-cleido-mastoideus muscle, on its under side, appeared wasted and corroded, and presented a suppurating surface. A small mass of fibrine, softened internally, adhered to the inner coat of the right internal jugular vein. Neither the integuments, larynx, œsophagus, or pleuræ, participated in the disease. .During life it had not been suspected. The left femoral and the right iliac and femoral veins, were obstructed with coagula, which in the inferior parts consisted of crassamentum, and in the superior of fibrine. In the upper part of each vein the fibrinous concretion contained a cavity in which was a semifluid, having a good deal the character of purulent matter, and which would commonly be called purulent matter.* The lower extremities were œdematous, the right more than the left,—but even the right extremity only in a moderate degree. There was little hair on pubis or chin; the *partes naturales* were all small; the larynx was small; the skin delicate. According to his comrades, he had always shown an aversion to the sex.

A very minute portion of fluid only could be procured from the *vasa deferentia*, which, under the microscope, exhibited numerous small particles, and a few larger globules,—but no spermatic animalcules. The fluid of vesiculæ was also small in quantity and destitute of animalcules. It was of a light-brownish hue, slightly opaque, contained some globules, and did not change the colour of turmeric or of litmus paper. The fluid from their fundus was most gelatinous, and appeared to consist chiefly of mucus.†

13. Aged 29, died of pulmonary consumption, complicated with peritonæal inflammation. The dissection was made twenty-seven hours after death. The body was exceedingly emaciated; the lungs were very voluminous and heavy; they contained a vast number of tubercles in different stages, some small cavities and one large one. This cavity was lined with a false membrane, which was even spread over the abrupt mouths of two or three bronchial tubes, and it was empty. Whether it was distended with air or its sides pressed together, was not ascertained. Eight pints of serum were collected in the cavity of the abdomen. There

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* It sustained this character subjected to the best tests: Thus, agitated with water, a white matter subsided, very little prone to putrefaction; iridescent when held before a light, globular under the microscope. The differences were rather in degree than kind, indicating, as it were, if the expression may be used, an imperfect purulent matter; thus, it putrified more readily than purulent matter; was only just perceptibly iridescent, and its particles were more irregularly globular and less compact. The mode of formation of this kind of fluid, with which pathologists are now tolerably familiar, is a curious problem, and deeply interesting in many of its relations.

† The *vesiculæ seminales*, in this instance, and their contents, resembled those of such castrated animals as I have hitherto examined.

were very numerous adhesions between the viscera. The omentum abounded in granular tubercles, and resembled an elongated pancreas. The cæcum was misplaced, and with the colon was confined to the left side. The ileum, *appendicula vermiformis*, and colon, were severely ulcerated. The appearances indicated a perforation of the appendicula by ulceration, afterwards closed by adhesion, and which probably gave rise to the peritonæal inflammation. The abdominal disease was not suspected during life.

No fluid could be obtained from the *vasa deferentia*. One was examined three hours after death. The testes were of natural size, and not apparently diseased. The vesiculæ contained very little fluid. It was thick, gelatinous, nearly transparent and colourless, and did not change the colour of turmeric or litmus paper. Under the microscope some globules were seen in it, but no animalcules.

14. Aged 27; died of pulmonary consumption. The dissection was made thirty-two hours after death. The body was much emaciated. The lungs were enormously diseased; besides a large excavation in each superior lobe, and several smaller ones, and a vast quantity of tubercles in progressive change, there was partial œdema and hepatization, and thickening of bronchia. One arytenoid cartilage was laid bare by ulceration, the left *nervus vagus* was partially atrophied under the pressure of an enlarged bronchial gland. There were numerous large granulating ulcers in the cæcum and ascending colon; the vermiform appendix was severely ulcerated, and the lower part of the ileum in a less degree. A short time before death, the bowels were regular; previously there had been diarrhœa.

The fluid obtained from the *vasa deferentia*, less than a drop in quantity, had a healthy appearance: it contained a few spermatic animalcules, and many globules, most of them very small, a few large. The vesiculæ were moderately distended with a fluid of a just perceptible brownish hue, of the consistence of mucilage and slightly viscid. It did not change the colour of turmeric paper. A small number of spermatic animalcules were detected in it, and many large globules, which did not disappear on dilution with water.

15. Aged 27; died of the effects of inflammation of the pleuræ and lungs. The dissection was made thirty-six hours after death. The body was sub-emaciated. There were twelve ounces of serum in the left pleura, and sixteen ounces in the right, with a sediment in each of flakes of lymph. Both lungs were partially adhering, and much heavier than natural; the left was œdematous to a considerable extent, and the right hepatized. Neither contained tubercles. In the superior lobe of right lung, there was a minute cavity, surrounded by an indurated, dark, puckered structure, conveying the

idea of a cicatrix of an abscess. The cæcum and ascending colon were red and rather flabby. The spleen, pancreas, and kidneys were obscurely diseased. During life there had been no suspicions of thoracic disease. Symptoms of disease of various kinds had existed at least nine months before death; anasarca prevailed at one time, and ascites; latterly the bowels were irregular, occasionally relaxed and passing blood, occasionally constipated.

The *vasa deferentia* were examined twelve hours after death. The very minute portion of fluid obtained from them was destitute of distinctly formed animalcules; it contained globules of different sizes, some of them very like fragments of the peculiar entozoa, the circular portion without the filament. The vesiculæ were examined thirty-six hours after death. They contained pretty much fluid, of a just perceptible brownish hue, and of a gelatinous consistence. Very many well-formed animalcules appeared in it. It did not change the colour of turmeric paper.

16. Aged 33; died of complicated organic disease of the bones, lungs, pleura, heart, peritoneum, &c. The dissection was made thirty-six hours after death. The body was exceedingly emaciated. The *os frontis* was carious, and in two places penetrated through by ulceration; lymph was deposited underneath on the *dura mater*. The left clavicle was enlarged, softened, spongy, and unusually vascular. At the base of each semilunar valve of the aorta was a small bony concretion. The heart appeared atrophied. The pleuræ were studded with small, white, firm tubercles. The right pleura contained sixteen ounces of serum; the left four ounces. In the inferior lobe of right lung, there were two circumscribed masses of coagulated blood. The cavity of the abdomen contained twelve pints of serum. The abdominal peritoneal lining generally was studded with tubercles similar in character to those of the pleuræ, as was also the omentum, which, gathered into a long mass retained by adhesion, resembled a pancreas in its appearance. The kidneys were small and obscurely diseased. The left iliac and femoral vein, and the right femoral, were completely obstructed by coagula, in part consisting of fibrine, softened, and of imperfect purulent like appearance, and in part of crassamentum little altered. There were no tubercles in the lungs; no ulcers in the air-passage or alimentary canal.

The *vasa deferentia* were examined six hours after death, and the vesiculæ thirty-six hours after. The very little fluid procured from the former, contained numerous minute globules, and some of a larger size, but no animalcules. No animalcules either were found in the fluid of the vesiculæ, merely globules of different sizes. The fluid contained in them was in a very small quantity, of a light brownish hue, and it did not change the colour of turmeric paper.

17. Aged 31; died of pulmonary consumption. The dissection was made twenty-five hours after death. The body was greatly emaciated. Besides tubercles, which abounded in the lungs and tubercular excavations, there was some œdema of these organs and hepatization and emphysema,—the last to a considerable extent,[*] with much redness of, and purulent discharge on bronchia. The intestines were not ulcerated.

The *vasa deferentia* and vesiculæ were examined twenty-seven hours after death. The vesiculæ were considerably distended with fluid, which was of a brownish tint, and did not change the colour of turmeric paper. It differed in consistence, according to the part from whence taken; that from the fundus was of the consistence of thick mucilage; that from the anterior part was more fluid; each abounded in well-formed animalcules, and in globules of a large size. About a quarter of a drop only of fluid could be procured from each *vas deferens*. No animalcules could be discovered in it, but globules of different sizes, and some resembling fragments of animalcules.

18. Aged 49; died after an illness of three days, in consequence of inflammation of the brain; had been previously in good health. The dissection was made fourteen hours after death. The body was stout and muscular. A large quantity of turbid serum with a sediment of purulent mater was found in the ventricles, and a considerable deposit of lymph with which purulent matter was mixed, on the base of the brain, the *medulla oblongata*, and on the upper part of the spinal cord. The abdominal and thoracic viscera generally were sound.

The testes and *vasa deferentia* were examined ten hours after death; the vesiculæ seventeen hours after. The fluid obtained from the *vasa deferentia* abounded in animalcules, some of which were alive and in languid motion. The fluid of the vesiculæ also abounded in them; they were all dead. This fluid had a brownish tint, and reddened litmus.[†]

19. Aged 30, died of pulmonary consumption. The dissection was made twenty hours after death. The body was much emaciated. In both lungs granular tubercles abounded, and there was a large cavity in the superior lobe of each. The liver, spleen,

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[*] Contiguous to the part where the emphysema was most remarkable, was a small cavity, which communicated by an ulcerated opening with the air-cells of the lungs. When the part was punctured under water, several cubic inches of air escaped from the emphysematous portion. It consisted of eight of azote by measure, and two of carbonic acid gas. In many other instances in which I have examined the air of emphysema of the lungs, I have found it similar.

[†] In this case, the prostate contained a good deal of fluid, corresponding to Meckel's description of it in its healthy state. It was of a fawn colour, opaque, slightly viscid; under the microscope it was found to abound in pear-shaped particles, nearly equal in magnitude to blood-corpuscles.

kidneys, and supra-renal glands were unusually firm. The liver weighed seven pounds, and contained some fatty matter. The spleen was about twice its natural size, and a portion of it dried on paper left a faint grease-stain. The ileum, cæcum, *appendicula vermiformis*, colon, and rectum were partially ulcerated; and some of the ulcers in the large intestines had penetrated through all the coats, excepting the peritonæal, and, indeed, this coat was penetrated through in the appendicula, where it happened to adhere in the right iliac fossa. There had been no dropsical symptoms; no peritonæal inflammation; diarrhœa had been troublesome in the last stage of the disease.

The *vasa deferentia* and vesiculæ were examined twenty-two hours after death. One vesicula contained pretty much fluid, the other very little. The fluid was of a just perceptible brownish hue, and of the consistence of mucilage; it contained a large number of animalcules and some globules, and did not change the colour of turmeric or litmus-paper. An extremely minute quantity of fluid was procured from the *vasa deferentia*, of cream-like appearance, and contained some globules, and many minute particles, but no animalcules.

20. Aged 41, died in consequence of the rupture of an aneurism of the thoracic aorta, not suspected during life. The dissection was made thirty-three hours after death. The body was muscular and robust as in perfect health. In the left pleura, into which the aneurism had opened, there were three and a-half pints of serum, and five and a-half pints of soft crassamentum. The viscera generally were sound.

The vesiculæ were examined thirty-eight hours after death, and the right *vas deferens* fifty-eight hours after. The fluid in the former was pretty abundant, of a grayish hue, without tint of brown, and of the consistence of common mucilage. It contained many animalcules; did not change the colour of turmeric or of litmus-paper; was coagulated by alcohol, and rendered a little more opaque by momentary boiling. In the drop of opaque fluid obtained from *vas deferens*, no animalcules could be detected; it contained very many minute particles, and many particles of an irregular form.

In all these cases the testes were examined, as well as the *vesiculæ* and *vasa deferentia*. Excepting in two instances, viz. the 18th and 20th, no animalcules could be seen in the fluid expressed from the divided substance of the gland. The fluid, when it could be obtained in sufficient quantity for accurate observation, was transparent, generally contained globules nearly equal in diameter to the blood corpuscles, and invariably contained dense particles, apparently spherical, very much smaller, from twelve to fifteen times smaller, and which, it may be conjectured, are the ova of the spermatic entozoa.[*] In the two instances in which spermatic animalcules were found in the fluid of the tubuli, the quantity of the fluid was greater than in the others.[†]

What are the inferences to be drawn from the preceding observations in relation to the question started concerning the nature of the fluid, and the use of the *vesiculæ seminales*?

The first inference that appears to me unavoidable is, that the *vesiculæ* are seminal reservoirs, according to the old opinion on the subject, and that which is still most commonly entertained by the continental physiologists. And next, that they are not merely reservoirs, but are also secreting organs, furnishing mucus, and perhaps some other fluid, for admixture with the semen.

The first inference is supported by the general resemblance, in several cases, of the fluid of the *vasa deferentia* and of the *vesiculæ*, and of the existence of the characteristic spermatic animalcules in the fluid of the *vesiculæ*, in every instance in which they were detected in the fluid of the *vasa deferentia*.[‡] Hunter does not mention having used the microscope in his inquiry. If he had, he could hardly have failed to have arrived at a different conclusion.

The second inference is supported by there being a certain difference in almost every case between the fluid of the *vesiculæ* and that of the *vasa deferentia*, and especially by the circumstance, that the difference of quality is most perceptible in the fluid of the fundus,—where most out of the way of being readily mixed with the fluid of the testes. What the exact difference of qualities is between the fluid of the vesiculæ and of the *vasa deferentia*, and, it may be added, of the *vasa deferentia* and of the testes, in perfect health, remains to be ascertained. It can be determined only by careful examination and comparison in the instances of criminals who have been executed, or of persons who have been killed by accident, not labouring under chronic disease, and in the vigour of life. I am disposed to think that the difference will not be found very considerable, and that between the fluid of the vesiculæ and of the *vasa deferentia*, it will consist chiefly in the former being more dilute and perhaps more bland and mucous.* Hunter was of opinion that the fluid of the vesiculæ is naturally of a brownish hue. As an invariable quality this appears questionable. The sooner after death the fluid is examined, the less brown it is. I have given amongst the preceding cases, instances in which it was colourless, and those examples in which there was reason to consider it least altered in consequence of disease: And, Mr Hunter's best observations are in accordance, viz. two instances, the only ones given in which examination was made very soon after death. He says, in a man killed by a cannon ball, " the fluid in the vesiculæ was of a lighter colour than is usually found in men who have been dead a considerable time; but it was by no means like the semen either in colour or smell." And, he adds, " in another man who died instantaneously in consequence of falling a considerable height, and whose body I inspected soon after the accident, I found the contents of the vesiculæ of a lightish whey-colour, having nothing of the smell of semen, and in so fluid a state as to run out on cutting into them."† The colour which the fluid of the vesiculæ commonly exhibits in late *post mortem* examinations is probably partly derived from the infiltration of some of the colouring matter of the blood after death, and, in part, perhaps, occasionally, from a vitiated secretion of the follicles, or secreting surface of the vesiculæ, and of the adjoining *vasa deferentia.*‡

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[*] I am disposed to consider this as probable, partly in consequence of the peculiarity of appearance of the particles differing from any particles which I have hitherto seen in other parts of the body,—and partly from analogy. MM. Prevost and Dumas, from their very extended and ingenious researches, have adopted a different conclusion, viz. that the spermatic entozoa are the result of secretion, and that the testes are the secreting organs;—a doctrine, perhaps, equally difficult to prove or disprove. The circumstance of the animalcules having been detected in the majority of the preceding cases in the *vasa deferentia* and *vesiculæ*, when they could not be found in the testes, appears to me more in favour of their origin *ab ovo* than by secretion.

[†] Probably in health, these animalcules exist invariably in the testes of man contained in the tubuli. The results of the experiments of MM. Prevost and Dumas on twenty-five different species of vertebrate animals, may be adduced in support of this conclusion; (Vide Ann. des Sciences Naturelles, Vols. i. and ii.) and I may add, that all the comparative trials I have yet made are in favour of it.

[‡] I may add, that I have observed spermatic animalcules in the vesiculæ of the ram and bull, precisely similar to those found in their testes and *vasa deferentia*; and if I recollect rightly, they have been detected in the vesiculæ of some other animals by MM. Prevost and Dumas. Whether the vesiculæ of certain animals, however, have not a specific use, distinct from that of being merely reservoirs, appears to be deserving of further and special inquiry.

It would be a work of supererogation to enter into a detailed examination of the arguments brought forward by Hunter in support of the views he advocated relative to the vesiculæ and their contents: It has been ably done by Meckel in his Manuel of Anatomy, by whom each argument has been seriatim answered, and in most instances, as it appears to me, in a satisfactory manner, but without reference to microscopical research. §

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* That the vesiculæ are glandular, or possess mucous follicles, seems unquestionable; I have seen them with the microscope, and the mucous secretion is made manifest in disease.

† Observations on certain parts of the animal economy. By John Hunter, 4to. London, 1786, p. 28.

‡ Occasionally after death, not only is the fluid of the vesiculæ found of a brownish discoloration, but also the inner surface of the vesiculæ, and of that portion of the *vasa deferentia* which is contiguous, and of similar structure; indeed, I have seen the portion of *vasa deferentia* just mentioned more discoloured than the vesiculæ themselves.

§ Manuel d'Anatomie Générale, Descriptive et Pathologique. Par J. F. Meckel, traduit par A. Jourdan et G. Breschet. Paris, 1825. Tom. iii. p. 643, et seq.

Admitting the fact, that the vesiculæ are like the gall-bladder and bladder of urine, recipients, it may be viewed as a fortunate circumstance in our economy, and admirably adapted to the condition of *man*. Like the bile or the urine, so the spermatic fluid in the healthy adult appears to be in constant process of secretion, and to pass as it is formed into its appropriate reservoir, from whence, without disturbance of the system, in a state of continence, it is either pressed out and voided during the act of alvine evacuation, or it may be in part absorbed. Mr Hunter, in accordance with the opinion which he had formed of the use of the vesiculæ, did not admit this. He believed that the fluid rather accumulated in the testes, and gave rise there to annoyance, requiring its evacuation by a disturbing act,—a doctrine of some danger, especially to youth, in its consequences. In confirmation of what is stated above, and in opposition to the doctrine of Hunter, I may farther state, that I have frequently examined microscopically the fluid from the urethra following the alvine evacuation, and I have always found it, from a healthy person, abounding in animalcules, the majority of which have always been dead; * and thus, perhaps, seeming to indicate that the vesiculæ are *cloacæ* as well as reservoirs, and are essentially designed for man, to enable him to control and to exercise that moral check on the passions, by which he should be distinguished from brute animals, and without which no considerable advance can be made in civilization, or in elevation of individual condition and character.

Relative to the effects of disease on the fluid of the *vesiculæ seminales*, and on the spermatic fluid generally, the instances brought forward are too few to admit of extensive induction. They seem to show, 1*st*, That chronic wasting diseases, terminating in death, arrest the secretion of the testes, or the production of those animalcules, on which, there is much reason to infer, the active power of the semen depends; 2*dly*, That the contents of the vesiculæ and *vasa deferentia*, under the influence of disease, retain longer their characteristic qualities than the contents of the tubuli; and, 3*dly*, That there is least fluid in the vesiculæ and in the *vasa deferentia*, and that it is most altered in instances of chronic diseases of the abdominal viscera, and especially of the intestines.

The subject of inquiry is in many respects curious, and some other of its relations are not uninteresting or unimportant. I shall allude to one only before concluding, and that connected with medical jurisprudence.

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* On rest, contrary to what Hunter states, I have found this fluid separate into two parts,—a sediment containing the animalcules and opaque, and a clear supernatant fluid destitute of animalcules,—thus analogous also to the spermatic fluid.

Admitting that spermatic animalcules are characteristic of and essential to healthy spermatic fluid, in certain doubtful criminal cases, probably, decisive evidence may be obtained by means of microscopical examination. The spermatic fluid undergoes change rapidly when exposed to the air, and even soon becomes putrid; but the spermatic animalcules, I find, resist change in a remarkable manner. In one instance, distinct remains of these animalcules were observed in putrid fluid, which had been kept ten weeks, at a temperature varying between 50° and 60° of Fahrenheit. In another instance, some fluid of the vesiculæ was applied to linen, and wrapped in paper and put by in a close drawer. It was examined the following day; at the end of a week, and after eighteen days, and each time animalcules were discovered under the microscope. The mode of making the trial was by saturating a small portion of the smeared linen with a few drops of water, and gently pressing out a drop for the experiment. Fragments of the animalcules were very distinct, and sufficiently characteristic; and on careful inspection, an entire animalcule, here and there, was observed. The application of these facts to the purposes of evidence does not require any comment.

Fort Pitt, Chatham, Dec. 16, 1837.

ART. II.—*Contribution to Statistics of Hernia among Recruits for the British, and Conscripts for the French Army.* By HENRY MARSHALL, Deputy Inspector-General of Army Hospitals.

THE instructions issued by the Army Medical Department for the guidance of Medical Officers in the duty of examining recruits, direct that no recruit is to be approved who labours under "hernia or a tendency to that disability." The method usually employed in the examination of recruits to discover whether they are affected with hernia, is to direct each man under inspection to produce a violent action of the abdominal muscles by coughing. During this operation the surgeon places his finger over the ring of the external oblique muscles, first on one side and subsequently on the other. Should any doubt arise during this trial, that a man may be affected with rupture, he is directed to jump as high as he can, by which means a protrusion of the gut is occasioned in cases where this disability exists. Little dependence is usually placed upon the allegation of a recruit, in regard to his previous liability to a disability, as it is not an uncommon circumstance for a man to regret having enlisted, and, with the view of being rejected by a medical officer, to falsely allege that he is occasionally affected with rupture, or some other disqualifying infirmity.

TABLE I. Showing the number of Recruits for the army examined at the Depot of the Centre Recruiting District (Dublin,) from the 25th September 1804 to the 15th April 1824, together with the number and Ratio of Recruits rejected, Causes of Disqualification, and Ratio found unfit by each class of Disabilities.

Years.	Examined.	Approved.	Unfit.	Ratio rejected per 1000.	CAUSES OF DISQUALIFICATION.																				
					Unhealthy aspect.	Scrofula.	Defective vision.	Defective hearing.	Ulcers or cicatrices.	Varices.	Hernia.	Fistula.	Chronic cutaneous affect.	Congenital deformities.	Chronic enlargement.	Fracture, displacement.	Malformation.	Syphilis.	Epilepsy.	Incontinence of urine.	Fatuous or insane.	Traces of corporal punish.	Paralysis.	Anomalous.	Disabled upper extrem.	Disabled lower do.
1804	486	383	103	212	14	3	6	1	23	4	6	2	6	1	2	3	3	2	1	0	1	0	0	3	10	12
1805	1601	1233	268	178	33	16	15	3	41	14	35	1	20	0	9	3	19	4	2	1	1	0	0	6	20	35
1806	1781	1415	366	208	53	13	29	2	107	14	34	0	12	2	12	2	10	6	0	0	3	1	1	7	18	40
1807	1776	1400	376	211	43	11	27	6	103	16	32	0	11	4	11	4	23	1	2	0	4	0	0	8	28	42
1808	1114	910	204	183	27	7	14	1	59	10	18	1	7	2	1	1	8	4	1	0	1	0	1	5	15	21
1809	1423	1103	320	224	46	18	19	5	77	29	16	1	9	3	4	4	13	8	1	0	2	1	0	7	26	31
1810	1523	1224	299	196	52	14	25	3	73	19	20	0	7	4	6	6	7	12	1	0	5	0	0	4	19	22
1811	1793	1480	313	174	44	10	22	3	61	18	46	2	3	3	15	4	10	8	0	1	3	0	0	6	24	30
1812	3220	2624	596	179	103	20	27	1	104	35	71	4	18	5	33	15	23	18	3	0	7	1	2	14	35	57
1813	2984	2531	453	151	103	13	12	1	63	15	61	1	13	4	23	15	14	12	1	1	11	1	3	12	27	47
1814	1535	1303	232	157	60	4	3	0	32	14	27	2	6	1	15	6	9	11	1	0	3	0	1	5	11	21
1815	3413	2759	654	194	113	23	20	8	99	22	74	8	23	11	33	10	39	23	10	5	5	6	3	26	38	55
1816	2740	2027	713	260	122	23	24	18	110	36	54	2	23	0	19	14	86	20	9	1	2	6	2	31	42	69
1817	1426	989	437	306	78	25	18	14	59	20	38	0	23	1	12	4	65	12	2	0	3	7	1	14	15	26
1818	1801	1090	711	395	124	31	37	4	111	52	69	2	34	0	54	6	70	12	2	0	0	24	0	15	28	36
1819	2783	2029	754	274	129	26	25	10	116	71	40	0	17	3	41	12	102	33	1	0	6	36	3	15	25	43
1820	1886	1296	590	312	92	19	22	19	96	75	25	0	22	3	33	6	63	12	1	1	2	15	1	12	24	47
1821	1986	1386	600	300	127	20	20	14	100	72	37	1	21	1	34	6	47	23	2	0	4	19	0	14	14	23
1822	3233	2274	959	296	178	27	33	13	110	120	96	1	28	7	51	10	101	33	2	0	2	33	1	24	26	63
1823	3100	2129	971	315	173	40	23	7	88	119	88	2	20	6	49	18	153	26	2	0	2	25	0	16	37	77
1824	1236	876	360	290	78	18	20	3	27	41	33	1	5	3	16	6	33	11	1	1	0	10	2	10	11	30
Tot.	42740	32461	10279		1792	381	441	136	1659	816	920	31	318	64	473	155	898	291	45	12	67	185	21	254	493	827
Rejected per 1000.			.	240	41.9	8.1	10.3	3.	38.8	19.	21.5	0.7	7.4	1.5	11.0	3.6	20.7	6.8	1.8	0.3	1.6	4.2	0.4	5.9	11.5	19.3

The science of statistics implies or comprehends two classes of operations. One consists in collecting data, and the other in arranging and drawing deductions from data already acquired. The preceding table, contains an abstract of the returns from which the conclusions are deduced, by which means the accuracy of the conclusions may be tested, and the results rendered more satisfactory. To withhold the sources of conclusions must contribute greatly to diminish the confidence of the public, in any deductions which may have been drawn from them, and on some occasions it may be alleged that it betrays a fear, lest mistakes in the operation should be discovered.

It would appear that, notwithstanding the great variety of circumstances under which recruits are presented for examination at recruiting depots, there is a considerable uniformity in the ratio of men found disqualified for military service. This uniformity would perhaps not occur in small numbers; but, by greatly multiplying observations, the accidental circumstances are more or less mutually destroyed, and the errors into which we might fall, are greatly obviated. There seems, therefore, to be in the occurrence of human disabilities a law, which determines the proportion of men who are disabled by infirmities and deformities, and thereby rendered unfit for the army. The above table shows that the mean ratio of recruits rejected during a period of war, or from 1804 till 1815, both years inclusive, was 185 per 1000 examined, the range of the ratio of rejections being from 174 to 224, or about 5 per cent. During a period of peace, or from 1816 till 1824, the mean ratio of rejections per 1000 was 301, the range of rejections being from 260 to 395 or about 13 per cent. The mean ratio of rejections for the whole period was 240 per 1000, or nearly one in every four examined. The small range of the ratio of rejections during the war period, viz. 5 per cent. while the duties of the depot were performed by a succession of staff surgeons, is calculated to support the inference, that there is a natural law which regulates the proportion of human disabilities among masses of the population, about the period of life when recruits are enlisted for the army. During peace the ratio of rejections was 12 per cent. higher than during the war period. This circumstance is easily accounted for. Strictness on the part of medical officers in the duty of examining recruits was rigidly enforced by heavy pecuniary penalties, and by censure from the military and medical authorities, when a medical officer approved of a recruit, who was subsequently deemed not eligible or unfit for the service.

The table shows that the mean ratio of recruits rejected in consequence of hernia was 21.5 per 1000 examined, being about one in 50, or one in every eleven found unfit for service.

Table II. Showing the number of recruits examined at the centre recruiting district, (Dublin,) from the year 1804 to the year 1827 inclusive, together with the number rejected in consequence of hernia, and the ratio of rejections on that account per 1000 examined.

Years.	Recruits Examined.	Unfit in consequence of hernia.		Rejected. Ratio per 1000 Examined.
1804	486	- - 6 - -		12.3
1805	1501	- - 35 - -		23.3
1806	1781	- - 34 - -		19.
1807	1776	- - 32 - -		18.
1808	1114	- - 18 - -		16.1
1809	1423	- - 16 - -		11.1
1810	1523	- - 20 - -		13.1
1811	1793	- - 46 - -		25.6
1812	3220	- - 71 - -		22.
1813	2984	- - 61 - -		24.
1814	1535	- - 27 - -		17.5
1815	3413	- - 74 - -		21.6
1816	2740	- - 54 - -		19.7
1817	1426	- - 38 - -		26.6
1818	1801	- - 69 - -		38.6
1819	2783	- - 40 - -		14.3
1820	1886	- - 25 - -		13.3
1821	1986	- - 37 - -		18.5
1822	3233	- - 96 - -		29.6
1823	3100	- - 88 - -		28.3
1824	1236	- - 33 - -		26.6
1825	6229	Inguinal, - 32 Ventral, - 44 Umbilical. - 6 Laxity (of one or both rings, - 81	163	24.5
1826	4018	Inguinal, - 14 Ventral, - 3 Umbilical, - 1 Laxity of one or both rings, - 30	48	11.1
1827	2583	Inguinal, - 13 Ventral, - 3 Laxity of one or both rings, - 22	38	14.6
Total,	55,575	1169		21.04

This table shows, that, during a period of about twenty-four years, 55,575 recruits were examined, and that 1169 were found unfit for military service in consequence of hernia, being 21.04 per 1000, or about one in 48. The relative annual ratio of rejections ranges from 11, in 1809, to 38 per 1000 in 1818.

It will be observed that 44 recruits were found unfit in the year

1825, on account of ventral hernia,—a term which is usually applied to hernial tumours that appear at any part of the belly, excepting at the natural apertures, in the parietes of the abdomen. These tumours varied in size from that of a pea to about half a hazelnut, and never appeared except during a violent action of the abdominal muscles. In the same year six recruits were rejected in consequence of slight protrusion at the navel, under the denomination of umbilical hernia. This blemish is very rare among natives of the united kingdom, and when it does occur it is in general so slight as to be scarcely observable even during violent action of the abdominal muscles. A large proportion of the natives of Central Africa have, in a greater or less degree, rupture at the navel, which does not seem to disable them in the least for hard labour. It appears probable that the preternatural enlargement of the aperture at the umbilicus is congenital. Winterbottom informs us that African children are very subject to protrusion of the navel. Atkins imagines the protrusion to be the "effect of bad midwifery, or straining in their infancy to work." But from what I have seen of the offspring of negroes, I believe that neither good midwifery nor a life of ease will prevent a protrusion at the umbilicus in children of the aboriginal inhabitants of tropical Africa.

Although I have, while officiating as staff-surgeon, rejected a number of recruits on account of small ventral hernia, and also in consequence of slight protrusion at the umbilicus, in compliance with the regulations, I do not recollect having seen an instance of either class of blemishes who was on that account unfit for his Majesty's service. The instructions issued on this subject directed that no recruit was to be approved who laboured under "hernia (of whatever kind,) or preternatural enlargement of the ring;" and, for many reasons, it would have been highly inexpedient for a staff-surgeon to be so far influenced by his own discretion or opinion as to commit a breach of the law. It will be recollected that the approval of a recruit by a staff-surgeon is not final, and consequently he must be in some measure guided in the execution of his duty, not by his own knowledge, experience, and discretion, but by his appreciation of the judgment and experience of the medical officer whose duty it is to decide finally upon the fitness or unfitness of a recruit for a regiment.

Table III. Showing the number of recruits examined in Edinburgh and Glasgow for a period of six years, or from the year 1817 to the year 1822 inclusive, together with the number and ratio of recruits rejected, and the ratio per 1000 found unfit on account of hernia.

	No. Examined.	Total Rejected.	Ratio Rejected per 1000.	Rejected on account of hernia.	Ratio of Rejections for hernia per 1000.
Edinburgh,	4469	1183	264	29	6.4
Glasgow,	5059	1192	235	40	7.9
Total,	9,528	2,375		69	
Mean Ratios,			248		7.1

Of every 1000 recruits inspected at these two stations, 248, or about one in 4, were found unfit for the service. The ratio of rejections in consequence of hernia was 7.1 per 1000 examined, or one in 138. The ratio of rejections on account of hernia was 1 to every 34 found disqualified for the service.

Table IV. showing the number of foreign recruits for the British Army inspected from 26th March 1796 to the 31st December 1810, the number rejected in consequence of Hernia, and the ratio per 1000 found unfit for service on account of that disqualification.

Number inspected.	Number rejected.	Ratio per 1000 rejected.
40,460	365	9

It may be proper to observe, that all foreign recruits who presented themselves in Hanover during the late war were sent to the depot of the German Legion at Lymington, and that, before being admitted into the army, they were examined and found fit for his Majesty's service. (*Morbid Anatomy of the Human Gullet, Stomach, and Intestines, by Dr Monro, p. 368.*) According to the above table the ratio of rejections on account of hernia was 9 per 1000 examined, or one in 110.

The following statement gives an account of the number of young men exempted from military service in France for three successive years on account of disabilities and low stature. (Athenæum, No. 435.)

Causes of Exemption.	1831.	1832.	1833.	Mean of 3 years.
Loss of fingers, -	752	647	743	714
Loss of teeth, - -	1304	1243	1392	1313
Loss of other members or organs,	1605	1530	1580	1572
Surdity and dumbness,	830	736	725	764
Mumps, - -	1125	1231	1298	1218
Lameness, - -	949	912	1049	970
Deformities, - -	8000	7630	8394	8008
Diseases of the bones, -	782	617	667	689
Myopia, (short-sightedness,)	948	891	920	920
Other diseases of the Eyes,	1726	1714	1839	1760

Causes of Exemption.	1831	1832	1833	Mean of 3 years.
Itch, - - -	11	10	10	10
Scurvy, - -	749	800	794	781
Leprosy, - -	57	19	29	35
Other diseases of the skin,	937	983	895	938
Scrofula, - -	1730	1539	1272	1514
Diseases of the chest, -	561	423	859	614
Hernia, - - -	4044	3579	4222	3946
Epilepsy, - - -	463	367	342	390
Various other disabilities,	9168	9058	10,286	9504
Feebleness of Constitution,	11,783	9979	11,259	11,007
Exempted in consequence of disabilities, -	47,524	43,908	48,575	46,669
Exempted on account of being below the minimum height,	15,935	14,962	15,078	15,325
Total Conscripts unfit, -	63,459	58,870	63,653	61,994
Force of the class of young men between 20 and 21 years of age,	295,978	277,477	285,805	286,420

The French army is in part recruited by voluntary enlistment, but principally by a modification of the conscription law.· By the recruiting code of the 21st March 1832, every Frenchman who reached twenty years of age during the preceding year is registered by a particular date in the register of the canton of which he is a resident, and from this register the levy for the year voted by the legislature is drawn by ballot. On an average, about one per cent. of a population attains twenty years of age during each year. For example the population of France in 1831 was 32,569,223, and the mean force of the class of young men registered for the years 1831, 1832, and 1833, was 286,420, which is equal to 1 in 113 of the above population. The registered young men all draw lots or numbered tickets, and those individuals who draw the numbers comprehended in the amount of the contingent being, those of least value, are obliged to serve, unless they are legally exempted, The causes or reasons of exemption from serving may be divided into three classes.

1. *Low stature*, being below the minimum height; 1 metre, 56 centimetres = 5 feet, 2 inches English.

2. *Unfitness for the service* in consequence of disabilities.

3. *Various humane considerations*, such as being the single sons of poor parents, &c., and young men applying to the learned professions, &c.

The places of the young men who have been exempted are filled up by the individuals who draw the next lowest numbers. When the contingent for the whole canton has been completed, the young men who have been exempted and the remainder of the class, namely, those who did not draw numbers within the amount of the levy, are dismissed, and permitted to return to their respective places of abode.

The contingent for the army in 1834 was 80,000; and the mean annual contingent for the years 1831, 1832, and 1833, was about the same amount. During the years 1831–4, in which last year the other powers of Europe reduced their armies, the military force of France pretty uniformly amounted to 400,000 men. The mean force of the class of registered young men may be thus analysed.

Mean census of young men between 20 and 21 years of age, for 3 years, namely, 1831, 32, and 33.			286,420
Annual contingent, -	80,000	126,669	
Exempted in consequence of disabilities,	46,669		
Exempted on account of low stature, -		15,325	
Exempted from humane considerations, and young men who did not draw numbers within the amount of the levy,		144,426	
			286,420

Table V. Showing the operation of the modified conscription law during the years 1831, 1832, 1833.

Mean an. No. of young men medically examined.	Rejected in consequence of disabilities.	Ratio rejected per 1000 examined.	Rejected in consequence of hernia.	Ratio of men reject. for hernia per 1000 examined.
126,669	4,6669	368	3,948	31.2

This table shows that 368 young men of every 1000 examined or 1 in $2\frac{6}{10}$ were found unfit for service, and that the ratio of rejections in consequence of hernia was 31.2 per 1000, or 1 in 32; of every 11.8 men rejected one was on account of hernia.

The operation of the conscription law for the years 1831, 32, and 33 displays in the ratio of particular disabilities among men under similar circumstances, a remarkable uniformity, which warrants the conclusion, that even hernia, which is usually attributed to accident, depends more or less upon some general law of nature, which more close observation, and a more extensive collection of facts, may help to explain. The following statement renders this conclusion extremely probable.

Years.	Conscripts exempted by infirmities, &c.	Exempted on account of hernia.	Ratio rejected in consequence of hernia per 1000 exempted on account of disabilities.
1831,	47,524	4,044	85 = 1 in 11.7 of No. reject.
1832,	43,908	3,579	81 1 in 12.3 do.
1833,	48,575	4,222	86 1 in 11.5 do.
Total,	140,007	11,845	
Mean 3 yrs.	46,669	3,948	84 = 1 in 11.9 do.

Abstract of the operation of the conscription law in the department of the Seine, from 1800 to 1810 inclusive, (eleven years.)

No. of young men who reached the age of conscription (20 years),			44543
Amount of different levies (approved conscripts),	14935		
Exempted from serving on account of deformities,	1488		
Exempted from serving on account of infirmities,	9660		
		26083	
Exempted in consequence of low stature, . .		4520	
Exempted in consequence of humane considerations, and persons who did not draw numbers within the amount of the levy, . . .		13940	
			44543

TABLE VI. Showing the number of conscripts in the department of the Seine examined during a period of eleven years, or from 1800 to 1810, together with the ratio exempted from serving in consequence of deformities and infirmities, and the ratio found unfit on account of hernia.

No. examined.	Exempted by disabilities.	Ratio conscripts exempted from serving per 1000 examin.	Exempted by hernia.	Ratio conscrip. exempted by hernia per 1000 examin.
26,083	11,148	427	834	31.9

From this table, it appears that 427 conscripts of every thousand examined were found unfit for the army, or 1 in 2$\frac{5}{10}$, and that the ratio of rejections on account of hernia was 31.9, or 1 in about 31. Of every 13.3 conscripts rejected, one was found unfit on account of hernia, or 76 per 1000 of the whole number rejected.

General Summary.

	Tables.	No. examin.	Total reject.	Ratio per 1000 reject.	No. rejected by hernia.	Millesimal ratio of rejections in consequence of hernia.
Dub. depot,	I.	42,740	10,279	240	920	21.5 = 1 in 11 of No. reject.
Glasgow & Edinburgh,	III.	9,528	2,375	248	69	7.1 1 in 34 do.
Germ. Leg.	IV.	40,462	0	0	365	9
France, mean 3 yrs.	V.	126669	46,669	368	3,948	31.2 1 in 11.8 do.
Depart. of Seine.	VI.	26,083	11,148	427	834	31.9 1 in 13.3 do.

The above summary presents several very remarkable results, one of which is, that the ratio of rejections on account of hernia in Dublin is three times that of Glasgow and Edinburgh. Hernia appears to be 50 per cent. higher among conscripts in France than among recruits examined in Dublin. The uniformity of the ratio of rejections for hernia among conscripts in France for three years (31.2), and in the department of the Seine for a period of eleven years (31.9), is sufficiently remarkable. The much higher ratio of rejections for disabilities in general among the conscripts in France, than among recruits examined for the periods specified in Dublin and Scotland, is also calculated to excite attention. Many speculative attempts have been made to estimate the proportion of cases of hernia among the population in this country, but hitherto, as might have been anticipated, without any approximation to a satisfactory conclusion. The records of hospitals, dispensaries, rupture societies, dissecting rooms, and the reminiscences of medical practitioners, do not furnish adequate materials for deducing either the absolute or relative ratio of individuals affected with hernia among the male population of a country; and I may add, that the words "prevalent," "frequent," or "not frequent," when applied to statistical results, and especially in regard to the existence of such an infirmity as rupture, without reference to the number of persons indiscriminately examined, convey no precise or satisfactory information.*

Had my materials embraced a longer period of time, and comprehended a greater number of stations, the results would have been still more conclusive and satisfactory; but if this contribution should excite any one, who has access to a more ample store of elementary statistical facts, to prosecute an investigation of this or similar topics, I shall be much gratified, and have completely gained my object.

ART. III.—*On Anomalous forms of Hysteria. (No. II. continued,) containing Analysis of new phenomena.* By THOMAS LAYCOCK, House Surgeon to the York County Hospital. (Continued from Vol. xlix. p. 461.)

THE causes of the phenomena of hysteria have afforded matter for speculation in all ages. The frequency of the disease, affecting in some one of its varied forms, almost every female, has been a constant incentive to ascertain its nature and cure. It has been noticed by all the best writers from Hippocrates downwards, under a variety of names, and has even been celebrated in lofty verse. Flemyng duly invoking Pallas, informs her

> Morbum etenim obscurum versu illustrare Latino
> Aggredior, miseros torquet qui sæpe Britannos
> — — — — — — —

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* Since this contribution was in the hands of the Editor, I have seen the fifth edition of Mr Lawrence's highly valuable and comprehensive treatise on Ruptures. In a note added to the first page, it is stated that 1.3 per cent of the French conscripts during the years 1831, 32, and 33, were exempted for hernia; whereas it will appear by Table V. that the ratio of conscripts exempted for this disability *among the men examined* was 3.1 per cent, or 31.2 per 1000. The mistake has obviously arisen from assuming that the whole class is medically examined, which is not the case. Conscripts who are exempted in consequence of low stature, or for humane considerations, or who draw numbers above the amount of the levy or contingent, are not examined.

> Quam variis fallax species vultus que minaces
> Induat :"[*]

This author with Sydenham, Whytt, and many others, considered hysteria and hypochondriasis the same disease. Hoffmann, Cullen, and Good have distinctly drawn the difference between them. Whatever opinions have been advanced, however, respecting the seat of hysteria,—whether confounded with hypochondriasis or not, all writers agree in placing it in the nervous system. Sydenham, Boerhaave, Flemyng, Whytt, Pomme, and numerous moderns have located the disease in the brain and nerves; Willis, Van Swieten, and Lobstein in the sympathetic; Hoffmann in the uterus and membranes of the spine. By Sydenham and many after him, again, it was attributed to irregular motions of the animal spirits; by others to irregular vibrations of the nerves. Pomme [†] believed that all the nerves had become corneous from the evaporation of the fluid which should keep them lubricated; and brings forward some ridiculous arguments in support of his opinion. Ludwig [‡] attributed it to some acrimonious principle seated in the nerves; and Frank, Bradley, Brown, Teale, Darwall, the Griffins, and Marshall, to spinal irritation. This appears to be the latest view of the subject, and possesses the same vague and generalizing character as the earlier. Although these opinions are all unsatisfactory, the concurrent testimony of so many different authors renders it certain that the nervous system is mainly implicated in the diseases under consideration. Our knowledge of the minute anatomy of the nervous system is of little amount, and of its physiology we know still less. Mr Adams[§] has recently shown, by quotations from the old writers, that the most important modern discoveries are but confirmations of the opinions of Erasistratus and Galen, respecting the spinal cord; and of Hippocrates and Timæus, the Locrian, as regards the brain. The only direct proof we have that the chain of ganglia called the sympathetic is a nervous system, is derived from a consideration of its anatomical structure and relations. Direct experiments have as yet failed to show that it is subservient either to sensation, motion, or secretion. It may appear a paradoxical opinion; but I cannot learn that there is any thing correctly known respecting it, excepting that it has none of the physiological qualities of other nerves. Perhaps the most striking demonstration of the uncertainty of our knowledge of the nervous system may be drawn from some of the conclusions of a very recent writer. Dr Elliotson[||] maintains, that the experiments recently performed to elucidate the physiology of the nervous system, and the inferences deduced from them, are contradictory and strange: that Dr M. Hall's excito-motory system is fancied and imaginary; and Sir C. Bell's respiratory tract is an anatomical fancy,—his respiratory system an untenable whim; that we possess no such imaginary thing as an immaterial soul; and that no argument nor a single fact has been adduced against Gall's phrenological (or more properly phrenorganological) doctrines.

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[*] Neuropathia : Poema Medicum, auct. M. Flemyng, M. D. Eber. 1740.

[†] Treatise on Hysterical and Hypochondriacal Diseases, translated by Berkenhout, from 4th edition. Lond. 1777, p. 9 and passim.

[‡] Edin. Med. and Surg. Journal, Vol. xlv. p. 447.

[§] In London Med. Gazette, Vol. iii. p. 657.

[||] Human Physiology, by J. Elliotson, M. D. 5th ed. Lond. 1837, Part. ii.

Having, then, no correct or positive general principles, it is not surprising that those writers who have taken the nervous system as a starting point, have failed to give a satisfactory explanation of the phenomena of hysteria. Sydenham, Pomme, and Whytt yield to no modern writer in the clearness and excellence of their descriptions, and modes of treatment; but, for the reason just given, their theories are of little value.

The almost exclusive and universal liability of the female sex to these affections, and their evident connection with the generative organs, have induced all the ancient, and a large majority of the modern, writers on these diseases to attribute their origin to some morbid state of the uterus. The general facts are undeniable, and the conclusions may be admitted as being partly correct.

Influenced by these considerations, and by a review of the cases detailed, as well as of a multitude of others, I am induced to take the following propositions as a guide through the analysis I propose. 1*stly*, In hysteria the nervous system is implicated. 2*dly*, In a vast majority of cases, it is the nervous system of females; so that, for the present, its occurrence in males may be considered an exception to the general rule. And, 3*dly*, It occurs in an equally large proportion of females at an age when the generative organs have a dominant influence on the system. The method I shall follow, then, in my analysis, will be, to ascend, as well as I am able, from particulars to generals, reversing, of course, the above arrangement; and begin by ascertaining, 1*st*, The relations existing between the phenomena of hysteria, and those referable to the generative organs of the female in health or disease; 2*d*, Follow a similar plan with reference to the nervous system of the female, in particular; and then, 3*dly*, With reference to the nervous system in general, whether of male or female. I propose to consider the phenomena referable to the vascular and secreting systems under the second and third heads.

Before commencing the first part of the analysis, it will be necessary to define, as distinctly as possible, the extent of influence the generative organs of the female possess over other organs, for we have no right to assume that this influence is the cause of all the distinctive peculiarities of the sex.

For instance, according to Autenreith, Soemmering, Meckel, and Velpeau, there are certain distinctive peculiarities in the size and general conformation of the sexes observable in the early months of fœtal life, such as the particular structure of the thorax and abdomen, the form of the head, the extremities, and the dorsal spine, independently of the sexual organs. * It is well known that, up to the eighth week, there is no perceptible difference in the sexual organs, the ovaries and testicles being exactly alike. And at a more advanced period of development, when these and the other generative organs have assumed their peculiar form, but as yet exert no perceptible influence on the general system, a marked difference may be observed. M. Quetelet has drawn up tables which illustrate wery well the difference in the weight and height of the two sexes at various ages. I shall merely give the comparative weights.

At birth, the male weighs -	7.05 lb. avoir.	the female	6.41 lb. avoir.
At 1 year of age, -	20.84		19.38
5 years -	34.78		31.67
12 -	65.76		65.76
15 -	88.69		89.03
30 -	140.37		121.80
And so up to the age of 90 †			

This table shows also the effect of puberty on the system, which occurs at an earlier age in the female than in the male, thereby giving her a comparative superiority from twelve to fifteen.

It is generally stated that there is little difference in the general appearance of the sexes before puberty. This is true with regard to the years of infancy; but a single glance at the countenances and persons of a number of boys and girls of various ages, from two to ten years, will convince the observer that there is a general harshness of outline, with greater proportionate magnitude, and a less delicate expression of countenance in the boys.

Between male and female animals deprived of the organs of generation, a difference may also be observed. The ox attains a magnitude far greater than that of the spayed heifer. The following is perhaps a better illustration. In a litter of twelve or fourteen pigs of different sexes, littered at the same time, by the same sow, and mutilated at the same age, we have all the most essential circumstances as nearly alike as possible. Yet the gilt pig, or spayed sow, is readily known from the gilt hog, or castrated male. It is true the latter has lost the distinctive sexual characters of the boar, but may still be distinguished by his coarser bristles and larger limbs. This is well known to the butcher, who says the gilt pig is more bloody, that is, has smaller bones than the hog. The canine teeth of the latter are also larger, just as occurs to the cas-

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* Graphic Illust. of Abortion, &c. by A. B. Granville. M. D. proleg. p. xi. 4to, Lond. 1834.

† Edin. Philos. Journal, 1834.

trated horse, which may generally be known from the mare by this peculiarity. The removal or non-development of the testicles by no means checks the general growth of the human male; special organs only suffer. A young man came one day to the hospital seeking advice, and, after a little reluctance, explained that he understood he was not like other men. I examined the generative organs, and found the penis and testicles of infantile magnitude; the latter could scarcely be felt in the scrotum. He was about five feet ten inches in height, of large and manly development, had a boyish voice, and no hair on his chin, chest, or pubes. He was very curious to know of what size the male organs ought to be, and wished to see plates or dried or wet anatomical preparations of them. He had erections, and had attemptted coition. He stated that he was a dyer by trade, and was made miserable by his fellow workmen; the women plaguing him, and the men strapping him. He seemed very intelligent, and acutely sensible of his condition. Dr Oppenheim did not find the mental faculties of the eunuchs in the Turkish harem at all depraved or impaired, as is commonly supposed. Nor in general is the stature or muscular power of eunuchs, if well fed and free from mental disquiet, less than that of other men.

It would appear, then, from these facts, that the opinion of Cabanis* is well founded. He maintained that the peculiarities of the mental and corporeal organization of the sexes, including those referred to the generative organs, depended upon some particular organization of the primitive nervous system. According to Geoffroy St Hilaire, Serres, and other continental physiologists, the development of an organ in the embryo has some direct ratio to the amount of nervous matter contained in it. The greater or less magnitude has certainly some relation of this kind. Consequently we have the conclusion, that the female is the result of a less energetic formative nisus, acting upon the different organs. Meckel and some of the German transcendental physiologists assert with Blainville and G. St Hilaire, that woman is but an imperfectly developed male; the primary formative nisus not being sufficiently powerful to carry the individuals through all the requisite phases of development.

Whatever truth there may be in the last-mentioned speculation, it is quite clear that the peculiarities of the female do not depend exclusively on the generative organs.

The less mental and muscular power of the female, and the greater susceptibility of her nervous system, are known by daily observation. Poets, whose duties it is to hold the mirror up to nature, have not overlooked these peculiarities. The Roman dramatist has put on record the mental character of the female of his day:

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* Rapports du Physique et du Moral de l'Homme, par P. J. G. Cabanis, 6me ed. Tom. i. p. 282, 8vo, Paris, 1815.

> " Mulieres sunt fermè, ut pueri, levi sententia
> Fortàsse, unum aliquod verbum hanc inter eas iram conciverit."[*]

Tasso, with a bitterness warranted perhaps by his own sufferings, declares,

> Femmina è cosa garrula e fallace,
> Vuola e disvuola ; è folle uom che sen fida.[†]

Our own Shakespeare must have been thinking of some peculiarly susceptible and hysterical female when he made Œnobarbus say of Cleopatra, " Cleopatra catching but the least noise of this, dies instantly ; I have seen her die twenty times upon far poorer moment :—She hath such a celerity in dying." To which Antony replies, " She is cunning past man's thought."[‡]

These well-known qualities of the nervous system of the female have been denominated by a French writer[§] *affectibility*—a term which seems to be very suitable. The consideration of them belongs, however, to the second part of the analysis.

The influence which the generative organs must exert over the whole animal economy, may be easily inferred from the general fact, that the final cause of all vital action is the reproduction of the species, and the preservation of the individual. The latter, indeed, in many cases, seems merely subservient to the former. Throughout the whole chain of being we find the power to reproduce the species is the climax of development ; being co-existent with the perfection of the individual. Indeed it would appear to be the sole object aimed at in the changes which many animals undergo, particularly butterflies, silkworms, and other insects which die so soon as they have performed the generative functions.

In the higher animals, the mere generation of a new being is but an initiatory part of the reproductive process ; the subsequent nutrition and defence of the young animal constituting an important part of the same series of action, and requiring the exercise of numerous instinctive faculties by the parent ; so that while the generative nisus is influencing a variety of the corporeal organs, the mental receive a corresponding impulse ; and the desire for sexual congress, the secretion of milk, and the love of offspring, are equally the results of the same reproductive effort. We have thus a natural division of the phenomena connected with the generative organs into corporeal and psychological.

Before we proceed with the proposed comparison and analysis of the phenomena of hysteria, as regards the generative organs, we must take some one organ as a point of departure, and ascertain clearly its relations. The ovaries, as the most essential of all the organs of generation, are best suited to this purpose. These or analogous structures are found in every form of vital matter, whether animal or vegetable, with a constancy the most surprising. No analogy can be more striking than that which exists between the really essential generative structures of the higher vegetables and animals.

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[*] *P. Terentii* Hecyra, Act. iii. Sc. 1.

[†] Gerusalemme liberata, Cant. xix, St. 84.

[‡] Antony and Cleopatra, Act. i. Scene 2.

[§] *Morelle*, Histoire Naturelle de la Femme, Tome i. p. 113.

The ovaries and testicles are altogether analogous. They are equally the products of the false kidneys, and at the seventh week of fœtal life, form slender elongated bodies placed below the true kidneys;—their permanent position in some lower animals. It is at a subsequent period, as is well known, that the differences of form and position are observed. The ovaries have generally been called and considered appendages to the uterus. But the fact is otherwise. The uterus is an appendage to the ovaries, just as the penis is an appendage to the testicles. It is a recipient for the ovum, and the medium through which the latter may be vivified by the male; exactly as the penis is essentially an organ for the transmission of the vivifying fluid. And, as in the classes of birds, fishes, and oviparous reptiles, there is no uterus, so in many of the latter there is no organ of intromission; neither being required by the structure of the animal; but in all, the essential parts are found; in the female the ovaries, in the male the organ which secretes the fecundating liquor.

The ovaries and testicles perform analogous functions, and have a similar influence on the general system. On their removal, all sexual desire is annihilated. The sexual characteristics within the limits already defined disappear, and, so nearly as a mere negation of them will allow, the individual approximates to the opposite sex. Dr Lee* and Dr Seymour, † quoting Pott's case, make it appear that the removal of the ovaries causes the voice of the female to become hoarse, and hair to appear on the chin and upper lip. If Pott had made such a statement, it must have been received with considerable doubt. Gravity of the voice of man, as well as of other male animals, and hair on the upper lip of the former, is a positive characteristic of the male, dependent solely upon the presence of the testicles. But I cannot find that Pott does make such a statement. He says that, after removing the ovaries from a female, she became thinner and apparently more muscular, her breasts wasted, and she ceased to menstruate.‡ Dr Allen

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* Art. " Dis. of the Ovaria" in Cyclop. of Pract. Med. Vol. iii. p. 227.

† Lectures on Diseases of the Ovaries, Lond. Med. Gazette, Vol iii. p. 767. These lectures have also been published in a separate form.

‡ Works, 3d ed. Vol. v. p. 184, also, works by Earle, 3 Vols. 8vo, Lond. 1790, Vol. iii. p. 353.

Thomson, also, has very recently stated, that "in women in whom it has been necessary to extract the ovaries on account of disease, the voice is harsh like a man's; there is frequently a formidable beard and hair on different parts of the body."[*] I have searched very diligently for an instance of this sort without success; and even if one were recorded, as it would be contrary to every day's experience in lower animals, it might be very confidently pronounced incorrect. We never see the spayed sow have the boar's tusks or bristles, nor the spayed heifer displaying the neck and horns of the bull; neither could we conceive that a spayed doe would sport a pair of antlers.

Changes, however, may take place in the ovaries of females, in consequence of which certain tegumentary appendages assume the appearance characteristic of the male. Hunter[†] noticed that old hen birds assumed the plumage of the cock; and particularly advocates the opinion, that the generative organs are superadded, and give origin to all the sexual characteristics, an opinion, as I have attempted to show, not quite correct. Mr Yarrell subsequently recognized analogous changes in young birds, and found them connected with shrinking of the ovaries. Similar changes not unfrequently occur in aged females, especially those who have been deprived of sexual congress. The voice becomes rough, hair grows on the upper lip, and the subtegumentary fat is absorbed. Occasionally young women have hair on the upper lip, and it is commonly considered to be (and I think justly) a mark of sterility.[‡] Mr Bingham[§] knew a young female who had a beard, that lost it after her marriage. In all these cases some change in the ovaries, not their absence, was doubtless the efficient cause of the masculine characteristics. Although the voice of the female do not become graver at puberty, it certainly acquires additional power and sweetness.

Judging from the effects on lower animals of such an operation, we might state the changes produced on the human female by removal of the ovaries as follow. A less luxuriant growth of the hair of the head and pubes, diminished deposit of fat beneath the skin, making the individual appear more muscular; inharmonious voice; wasted mammæ; amenorrhœa; sterility; and alterations in the social feelings, especially with regard to the male sex, arising from the absence of all sexual or reproductive impulse. The state of the pelvis is not ascertained.

It has been usual to consider the organs implicated in these changes as influenced, negatively and positively, by the uterus. A very recent writer* states, that absence of the uterus causes the female to assume the masculine character. This does not occur to females under any circumstances, except those mentioned. In a history related by Mr Pears in the Phil. Trans.† of a female in whom the ovaries and uterus were rudimentary, there were no signs of puberty nor any masculine characteristics; neither were the latter observed in a female with a similar defect, noticed by Mr Baynham;‡ the mammæ were undeveloped, and no hair was on the pubes.

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[*] Cyclop. Anat. and Physiol. Vol. ii. p. 443.

[†] On the Animal Economy, p. 80, 2d ed. 4to, Lond.

[‡] Edin. Med. and Surg. Journal, Vol. viii. p. 253. Bingham, Essay on Diseases of the Urethra and Testicles, p. 33, 8vo, Lond. 1820.

[§] Op. cit loco citato.

If the uterus only be absent or rudimentary, then all the external feminine characteristics are present. Dr Dewees § knew a young lady whose uterus was not larger than the thumb of a man, the cervix being about the thickness of a writing quill. The pubes was clothed; the mammæ developed, and there were sexual desires: menstruation had never occurred. Dr Blundell removed the uterus from a woman aged fifty years. A year after, the sexual desires were unimpaired; the mammæ large, with full-sized glands; and the body plentifully supplied with fat. ‖ On the contrary, in Pott's case, the uterus was uninjured, yet the peculiarities of the female disappeared. It is plain, then, that the uterus has nothing to do, primarily at least, with these peculiarities. But the numberless instances we see daily of mutilated domestic animals, clearly prove the proposition for which I have now been contending, namely, the dominant and sole influence of the ovaries in their production. The opinion, that the menstrual discharge is in some way derived from the ovaries, or by an influence on the uterus from them is, of course, included in the preceding proposition. Its novelty renders more detailed notice requisite.

Cabanis¶ considered the menses to be excited by a particular humor, which he supposed the ovaries secrete. Dr Vaughan** thought the menses a secretion dependent on the ovaria. Dr R. Lee†† has the merit of having entered into some details tending to support these opinions, and concludes that menstruation depends upon some change in the Graafian vesicles. He adduces several of the preceding and analogous facts, and adds some interesting dissections of females who died during the supposed flow of the menses. They cannot, however, be considered conclusive. A sanguineous discharge must not be mistaken for the menstrual fluid, which is a secretion *sui generis*, as maintained by Haller, Bordeu, Hunter, Saunders, Dewees, Ramsbotham, and Sir C. M. Clarke.

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* Dr Davis, Prin. and Pract. of Obstetric Medicine, p. 512, 4to, Lond. 1832.

† Abridg. Vol. xxiii. p. 225. ‡ Lond. Med. Gaz. Vol. iii. p. 732.

§ A compend. System of Midwifery, p. 53, 8vo Lond. 1825.

‖ London Med. Gazette, Vol. iii. p. 798.

¶ Rapports du Physique, &c. de l'Homme, 3me ed. Vol. i. p. 280. Paris, 1815.

** Essay on Headachs, p. 206–212, 8vo, Lond. 1825.

†† Cyclop. of Pract. Med. art. Ovaria, Dis. of, Vol. iii. p. 227.

It has recently been found to redden litmus paper, and to contain free phosphoric and lactic acids,[*] and some phosphate of lime. In Dr Lee's cases there is no proof that the sanguineous discharge observed at the time of death was menstrual. In Messrs Girdwood and Webster's case, it plainly was blood, as it is equally evident that the changes in the ovaria were those of disease. In one or two of the other cases, the changes were probably those of inflammation of the ovaries, which, according to Dr Löwendhart, occurs most frequently, either just before or after menstruation, or after accouchement or abortion.[†] In connection with this subject it may be stated after Dr Davis,[‡] that inflammatory affections of the Fallopian tubes have been almost invariably observed in cases of suppressed catamenia or lochia.

The flow of the menses has been considered analogous to the heat of lower animals by numerous writers. Darwin[§] remarks that, in mares and bitches, if the venereal orgasm be disappointed of its object, it recurs at monthly periods. Dr A. Thomson remarks, that the ewe, if unimpregnated, comes in heat every fourteen days; the cow, some apes, the mare, ass, and buffalo, every four weeks.[||] It is quite certain that this state depends on the ovaries. These remote considerations, however, I apprehend, are altogether unnecessary. It has been already shown that the other sexual characteristics of the female are dependent upon the presence of the ovaries; and when we consider that the catamenia themselves do not appear when these organs are absent or undeveloped, although the uterus be present, there seem to be no reason for withdrawing this secretion of the uterus from their influence.

Still stronger arguments, however, in support of this opinion, may be drawn from the phenomena of conception and pregnancy. Bearing in mind the intimate analogy between the testes and ovaries, and knowing so distinctly the remarkable influence of the former in generation, we cannot object to assign an equal power to the latter.

Conception takes place in the ovarium. Meckel and others have doubted this; but Bäer of Königsberg has decided the question by his recent microscopical researches.[¶] It is also quite in accordance with the mode of generation in vegetables. It is in the ovarium that the new being acquires the means and power of self-existence, until its organization is sufficiently advanced to enable it to draw nourishment from the mother by means of the uterus, and at a still more advanced period from the mammæ. It is also some influence exerted in or by the ovaries, which causes the necessary changes in these organs, for they are experiencing these changes in some degree before the ovum has left the ovarium, and suffer them to a remarkable extent in cases of extra-uterine pregnancy, in which the ovum never enters the uterus at all, but remains in the Fallopian tubes or ovary: showing clearly that these various changes are not dependent upon the presence of the embryo in the uterus, but upon causes which we can refer to the ovary only.

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[*] By Retzius of Stockholm. British and For. Med. Review, Vol. ii. p. 275.

[†] Essays, &c. noticed in Ibid. Vol. ii. p. 527.

[‡] Op. cit. p. 760. [§] Zoonomia, 3d ed. Vol. iv. p. 238, Lond. 1801.

[||] Cyclop. of Anat. and Physiol. Vol. ii. p. 441.

[¶] Granville, op. cit. Prolegom. p. iii.

Lastly, in almost all the inferior animals sexual desire appears as completely abolished when conception takes place, as if the ovaries were removed.

From these and other considerations which it would be out of place to mention here, we may conclude, that the flow of the catamenia, the development of the Graafian vesicle, and the general phenomena of menstruation, are but evidences of a periodic nisus of the whole generative system, for the excitement of which the presence and due development of the ovaries are necessary. In brutes, the most prominent evidence of this nisus is the sexual desire it excites, which is removed by conception. In the human female, impregnation does not arrest the nisus; for although there is not menstruation, various symptoms appear which indicate a menstrual effort (p. 35,) and are sometimes followed by abortion. Now this effort in most, if not all, mammalia takes place at hebdomadal periods, or their multiples, as every fourteen, seventeen and a half, twenty-one, or twenty-eight days, and, apparently in accordance with this law, in females commonly abortion ensues at the end of the seventh month of pregnancy. But if there be no ovaries, there is none of these periodic efforts of the reproductive system.

While contending for the dominant influence of the ovaries over every organ and process connected with generation, I by no means would exclude the reflex action which the various organs under their influence may exert upon them, and through them upon each other; but, on the contrary, would maintain that this does occur in numerous instances as in Case 38. Some such will be noticed in the following pages.

Considering, however, the preceding statements, I assume that the ovaria are the organs through and by which the mental and corporeal phenomena of generation are developed, and shall consequently take them as a starting point of the analysis. I propose and shall adopt the following arrangement. I shall refer the phenomena of hysteria,

1*stly*, To organs having a direct physiological relation with the ovaries; namely, the uterus, mammæ, larynx, subtegumentary membrane, skin and its appendages.

2dly, To organs having an indirect relation; the parotid and other salivary glands; thyroid body, fauces, pharynx, and œsophagus; teeth; neck in general.

3dly, Organs having a direct anatomical relation:—kidneys; bladder; large intestine; dorsal and lumbar portion of the spinal cord.

4thly, Organs having an indirect anatomical relation through structures under heads 1st and 2d;—the cervical portion of the spinal cord.

5thly, To the encephalon as the organ of the instinctive faculties subservient to the reproductive process.

FIRST CLASS OF ORGANS.

THE UTERUS.—We have already seen that the connection of this viscus with the ovaries is most intimate. The first appearance of its peculiar secretion, the menses, is a direct proof that the ovaries are duly developed, and its regular reappearance an index that the influence of these organs is duly exerted. The first appearance of this secretion is almost always accompanied with symptoms of hysteria, more or less severe; recurring also occasionally at each monthly period. Its sudden suppression is frequently attended by consequences plainly intimating the shock the ovaries have received while in a state of *affectibility*. Sudden fright is one efficient cause; but any severe affection of the system while the ovaries are excited, will produce the most extraordinary symptoms, especially in early life, when the generative powers are not fully established. Cases 12, 29, 33, 34, 36, 46, 48, 50, 57, 59, and 65, show the effects of fright; indeed, many others are marked instances of the effects of depressing mental excitement, typhus fever, exhausting diet, and profuse loss of blood at the menstrual period. Occasionally, suppression does not come on under these circumstances, but, on the contrary, there will be profuse *menorrhagia*, with severe neuralgic pains, and those symptoms of hysteria which are referred to the pelvic viscera, as tympanites, increased or diminished secretion of urine, spinal, abdominal, or crural tenderness.

Painful menstruation is frequently accompanied with these symptoms and some belonging to the pregnant state, as pica, longings, irritable temper, &c. * But all will disappear so soon as the monthly generative nisus is terminated. The same occur about the cessation of the catamenia.

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* Mauriceau, Traité des Malad. des Femmes Grosses. 6me ed. Tome. i. p. 91.

Amenorrhœa does not necessarily indicate some disordered state of the ovaries. It may originate in imperforate hymen, non-developed or absent uterus, and also when the generative organs are perfect and vigorous. In the latter class of cases, conception will induce the necessary degree of excitement, and menstruation will go on during pregnancy. Dewees* mentions a remarkable instance; and Baudelocque and Deventer give others. Dr Montgomery† gives numerous illustrative instances from various writers. Occasionally this monthly excitement is communicated to the intestines or kidneys, and we then have a monthly diarrhœa ‡ or bloody urine.

The state of the ovaries during menstruation is probably in some degree analogous to that of pregnancy; in the former, when the Graafian vesicle has burst, the symptoms disappear. Sometimes the state is permanent, and we may have every symptom of pregnancy, from the earliest, to vigorous parturient efforts at the end of nine months, and yet conception not have taken place.§

Each of these states of the catamenial secretion now mentioned has a name as if it were a distinct disease. In reality it is only a symptom of varying degrees of value in proportion to the importance of those with which it is connected. The due and regular secretion of the catamenia, on the contrary, indicates, in general, a healthful or diseased state of the ovaries, but not always, just as its absence does not invariably insure sterility. These are exceptions, however, to the general rule.

Neuralgic pains of the uterus are very common in hysteria, and are generally accompanied with increased sensibility of the *cervix*; the latter, also, according to Lisfranc,‖ having in these cases the form and size it presents in the second month of pregnancy.

THE MAMMÆ have many symptoms referred to them in hysteria, on account of their close connection with the ovaries,—their very existence, as I have already shown, depending on the presence of these organs; their relations, indeed, are quite as intimate as those of the uterus, this organ, the ovaries and mammæ, forming a chain, of which the ovary is the central link.

Conception is followed by increased growth of the mammæ, turgescence of the nipple, deeper shade of the areolæ, development of the follicles scattered over the latter, and the secretion of milk. It is not yet certain that any one of these changes is peculiar to pregnancy. They are all the result of ovarian excitement, and occur in other states of the ovary than those produced by conception.

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* Compend. System of Midwifery, p. 97.

† Cyclop. Prac. Med. Art. Signs of Pregnancy, Vol. iii., p. 470, and work recently published.

‡ Dr Davis, Obst. Med. p. 887.

§ Med. Chir. Rev. N. S., Vol. i. p. 495. Fothergill's Works by Elliot, p. 464. 8vo, London, 1781.

‖ Clin. Lect. in Lancet, Vol. i. 1834–5, p. 356.

The influence of the mammæ on the ovaries is very conspicuous. Sinapisms,[*] suction, or leeches[†] applied to them excite a flow of the menses. Hippocrates [‡] recommends cupping-glasses to be applied to the mammæ as a remedy for menorrhagia. Titillation of the nipple, [§] as is well known to milk-maids, or the presence of offspring [||] acting in the same way, excites a kind of venereal pleasure, erection of the nipple, and an increased flow of milk. In connection with this part of the subject may be mentioned the recommendation of Carus (in his Gynäkologie,) to apply the infant to the breast when the placenta is slow in coming away. Dr Rigby[¶] has found the same procedure useful in arresting profuse hemorrhage after labour, just as Hippocrates found cupping the mammæ useful in flooding.

Increased Magnitude of the mammæ to an enormous extent is occasionally observed and has always been connected with obstructed catamenia in young females otherwise healthy. It would seem to depend on a metastasis of the ovarian influence from the uterus to the mammæ; accordingly, the most efficient remedies in reducing the size of the latter are those which restore the menstrual secretion.[**] In a fatal case recorded by Dr Haston,[††] the ovaria were larger than natural, and apparently diseased, and the uterus for two-thirds of its surface was coated with lymph. The right mammæ weighed twelve pounds, the left twenty, and the changes which had occurred in them was simply hypertrophy of their proper structure. There is a curious instance of hypertrophy of the mammæ of a man from a blow on the back, accompanied with wasting of the testicles, in a recent number of the Lancet.[‡‡] Renauldin mentions an analogous case occurring in a lecherous young man, aged twenty-four, who had infantile penis and testicles, and feminine form.[§§]

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[*] Dr Paterson, Dublin Journ. of Med. and Chem. Science, Vol. iv. p. 193. Dr Mondiere, Journal Hebdom. 1834. The Lancet, Vol. i. 1835–6, p. 904.

[†] Ed. Med. and Surg. Jour. xxxviii. p. 61. Lancet, Vol. ii. 1838, p. 498.

[‡] Aphor. 50. [§] Bordeu, Recherches sur les Glandes.

[||] Darwin, Zoonomia, 3d. ed. Vol. iv. p. 198. Lond. 1801.

[¶] Lond. Med. Gaz. Vol. xiii. p. 786.

[**] Hey's Pract. Obs. in Surgery, Chap. xviii. 3d. ed. 1814. Dr Cerutti in Meckel's Archives for April 1830, and in Dublin Journal, Vol. iii. p. 224. Dr H. Lane in Monthly Archives of Medical Science, January 1834. This and the preceding paper form a very complete history of hypertrophy of the mammæ, and abound in literary research. Further information may be found in a paper by Dr Fingerhüth, translated in Dublin Journal, Vol. xi. p. 245; and in Br. and For. Med. Rev. iv. 224.

[††] Amer. Jour. of the Medical Sciences, August 1834.

[‡‡] Vol. i. 1838–9, p. 356.

[§§] In Dr Lane's paper just quoted.

The secretion of milk will occur also in ovarian disease, an instance of which is given by Dr Vaughan, [*] and independently of any generative stimulus whatever, as shown by the numerous instances of galactirrhœa in females while menstruating regularly, in old women, and in males.

The dark *areola* is frequently met with in cases of ovarian derangement, and altogether independently of conception.

I examined the areola of two females in the hospital at nearly the same moment, and could find no difference in colour between them; yet the one, aged 22, had menorrhagia only, and had not had a child, while the other, aged 28, was in the fifth month of her first pregnancy. A late reviewer [†] states that he has seen the dark areola in cases of dysmenorrhœa, and that he knows practitioners who have seen them in similar cases, and also in uterine irritation. Professor Hohl has noticed the same changes of colour in the areola of females who never had had children, at each catamenial period;[‡] a fact I have verified by my own observation. All these statements corroborate the opinion of Denman, who asserts that these changes may be produced by any cause capable of giving to the breasts a state resembling that which they are in at the time of pregnancy.[§] From oversight I have not looked for the turgescence and follicular enlargement on the areola, mentioned by Dr Montgomery, [‖] as so unerring a sign of pregnancy, until lately. I have observed them, however, at the catamenial period in a young married female now in the hospital, and suffering severely from hysteria and spinal irritation, who assures me she is not pregnant, and who I believe is not. They disappeared at the time she said menstruation had ceased. Dr Hamilton[¶] himself says, "there is a certain degree of turgescence during menstruation, which proves of temporary duration only," just as might be expected. I may venture to say, however, that very plump mammæ, prominent nipples, and dark-tinted areolæ are so frequently present in young hysterical females, as to aid with other symptoms in forming a diagnosis. I have observed these appearances, certainly not in every case, but so uniformly that they conduced to lead me to the present line of investigation.

The follicular enlargement seems not unlike that follicular excitement which occurs on the face at puberty, and in many cases of amenorrhœa.

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[*] Essay on Headachs, p. 219.

[†] Of Hamilton's Obs. relating to Midwifery, in Br. and For. Med. Rev. Vol. iii. p. 140.

[‡] In his work on Obstetric Exploration, reviewed in Br. and For. Med. Review, Vol. i. p. 100.

[§] Introduction to Midwifery, 4th ed. Vol. i. p. 251.

[‖] Op. cit.

[¶] Observations, p. 146, 8vo, Edin. 1836.

Titillation and analogous sensations in the mammæ. These are frequently complained of, especially by females affected by hysteria, when the cessation of the catamenia is impending. They will particularly mention a sensation or tingling, as if milk were about to flow, and, indeed, many other feelings of pregnancy.

Neuralgia of the mammæ, particularly of the left mamma, is frequently observed in hysterical females. This circumstance of the left being rather affected than the right is curious, and must be noticed again. This *neuralgia* is common also in leucorrhœa, and painful menstruation.*

THE LARYNX.—This organ is intimately connected with the ovaries and testicles, and is the seat of one of the most striking characteristics of the male of many species of Aves and Mammalia. The bellow of the bull, the loud and sonorous neigh of the stallion, the deep voice of the ram, the spirited notes of the common cock, and the song of male singing birds, are all in remarkable contrast with the analogous sounds of the female and castrated animals.

The changes which take place in the larynx at puberty are not so well marked in females as in men, but an attentive observer will notice even in them the break of the voice which renders the intonation of young males so ridiculous not only in man but other animals. It is more observable in some females than others. I know a young lady in whom it is quite as obvious as in a growing boy.

When the ovaries are fully developed, the voice of the female acquires its utmost melody and sweetness, which it maintains undiminished until the ovaries begin to shrink, and the catamenia cease. The songstress of the opera or the theatre rarely appears before the public advantageously after the age of forty-five or fifty. L. Villermay notices this circumstance, as well as the occasionally curious intonation of the voice of pregnant females, and the aphonia of amenorrhœa.† According to Dr Fingerhüth, the voice of females having hypertrophy of the mammæ, sometimes becomes rough, hoarser, and somewhat double.‡ I have already enumerated certain characteristics in aged unmarried females, among whom a hoarse voice is very common. The hoarse disagreeable voice of prostitutes most probably depends upon some particular state of the ovaries. Parent du Chatelet § remarks on this peculiarity, and attributes it to their vociferous manners. If carefully observed, however, it will not be found to resemble the hoarseness of those who habitually extend their voices, but rather the break, in an aggravated form, which I have already noticed as occurring at puberty. These and similar instances offer a large field for curious and gratifying research. At present little is known on the connection between the testicles and ovaries, and the organs of voice.

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* Davis, op. cit. p. 415.

† Dict. des. Sc. Med. Art. *Hysterie*, Tome xxxiii. p. 228.

‡ In Dublin Journal, Vol. xi. p. 245.

§ Sur la Prostitution dans la Ville de Paris, Tome ii.

Hoarse or rough voice is occasionally observed in hysteria. At the moment of writing, there is a marked case in the hospital. If accurately observed, it may be considered a good pathognomonic sign.

Aphonia is very common. Being quite as fugitive as the globus, it is seldom on the patient's catalogue of ills. However, on inquiry, she will instantly assure one of its existence. It is perhaps more common than the globus, for it almost always accompanies it, and is present when the latter is absent. Aphonia is principally noticed when permanent. It probably consists in an inability to render the *chordæ vocales* tense from paralysis of the laryngeal muscles.*

Barking and incessant cough is another symptom properly referred to the glottis, as also a *spasmodic* or *whooping cough.* Both seem to arise from some nervous irritation of the mucous membrane. I may be permitted to use such a phrase, as expressing some unknown nervous state of the parts.

The *croupy cough* is occasionally observed in hysteria, and seems very similar to the spasmodic cough from which pregnant females suffer, and which is usually preceded by retching. This cough is well known in this neighbourhood by the name of cradle-cough.

Sir C. Bell has alluded to the coughs of hysterical females, and given several instances. I am glad to observe that he attributes them to some irritation, of which the ovaries are the source.†

Dyspnœa and *frequent* or *panting respiration.*—These probably arise from spasmodic closure, or half-closure of the glottis. Dyspnœa is the most distressing symptom of common hysteria. The sensation is exactly as if the ingress of air was prevented by some mechanical impediment, and the convulsive motions accordingly are like those of a person strangling. This state of spasm is only terminated by the paralysis consequent upon the circulation of venous blood, or by the more powerful effort at inspiration, or gasp, caused by dashing cold water on the surface. This is the point in which epilepsy and hysteria differ. In the one, the respiratory muscles are convulsed, in common with the muscular system in general. In hysteria the convulsions are consequent upon the suffocative spasm of the glottis. Hey gives a case illustrative, (Practical Observations, Chapter xv.)

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* Dr Todd, Cycl. Practical Medicine Art. Paralysis, Vol. iii, p. 252.

† Appendix to the papers on the Nerves, in Phil. Trans. 8vo, 1827, p. 99.

Occasionally *crowing respiration* is the most distinguished symptom, and may arise from a partial spasmodic tension and closure of the rima. In these cases the respiration is frequent, and the loud crowing, equally frequent and incessant, preventing the patient and those around her sleeping, and causing intolerable annoyance. Case 47 is a good example.

Convulsive sobbing ought perhaps to be placed under this head. It is exactly like that which attacks a person unaccustomed to cold, when walking slowly into a cold bath for the first time. This in a more aggravated form is the dyspnœa of the hysterical paroxysm, and, of the person using a cold shower-bath for the first time, and, as I know from personal experience of the latter, is very distressing. Convulsive sobbing frequently accompanies and terminates a fit of common hysteria, but is as often observed in the chronic and aggravated forms, quite distinct from a regular paroxysm.

SKIN and SUBTEGUMENTARY MEMBRANE.—A consideration of the skin includes also that of its appendages. Of these the mammæ have been already mentioned, and the teeth will be noticed subsequently. The appendages of the skin have an intimate connection with the testicles and ovaria. The plumage of male birds,* and the tusks, horns, mane, beard, and the colour and texture of the hair of many males of the Mammalia, furnish proofs of this, so obvious and common, that particular reference is unnecessary. There is one of the generative structures of the skin, which deserves some notice, namely, that which secretes the sexual odours of animals. These are very generally some modification of the musk odour, varying in intensity with the habits of the animal. This musk odour is certainly the sexual odour of man. Sauvages declares, "Vapor fœtidus apud hircos æstro venereo percitos procul dispergitur; *mulieres* emunctæ naris affinem huic odorem in *viris cognoscunt*."† In some persons it is very pleasant, and perhaps would seldom have that disgusting and suffocative effect if due attention were paid to cleanliness. Its principal seat is in the follicles of the axillæ, and is not given off before puberty. It is most powerful in individuals who have strong sexual powers, or are continent. The ancients said of a man who abstained from venery that he smelt like a he-goat. The scents of captive animals have a similar origin. Very offensive exhalations from the genitals are occasionally transferred to the axillæ. Aretæus says that the froth on the lips of men affected with satyriasis is not unlike the smell of a goat under the influence of the *œstrus veneris.*[*] It is not improbable that the odours of the flowers of vegetables are analogous to this. It is certain, however, that the hircine odour marks those vegetables used as aphrodisiacs, and, in connection with all these circumstances, it is a curious fact that the most popular antihysteric remedies are of the same nature. It is not my intention to enter on the vast field for speculation derived from the effects of remedial agencies on the generative system. The above statements are made incidentally, with the hope of directing attention to the subject.

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* The *Ptiloris Paradiscus*, a bird of New Guinea, is an instance in which the male is clothed with feathers of the most gorgeous hues imaginable, while the female is in homely russet brown. Vide a familiar History of Birds, &c. by the Rev. E. Stanley, Vol. i. p. 77, 12mo. London, 1835.

† Nosol. Method. Tome ii. p. 420. Tiedemann is very copious on this subject. Comparative Physiology by Gully and Lane, Vol. i. p. 208, 8vo, 1834.

The smoothness and softness of the skin, and delicate finish of the whole system of the human female, form a small part only of the numerous attractions she possesses, but undoubtedly are an essential portion of the machinery of that extensive system instituted to secure the propagation of the species. They, like other sexual characteristics, are dependent on the due development of the ovaries. Remove these, and the fat deposited in the subtegumentary tissue, giving the skin its softness and equality, disappears, the individual becomes thinner, and the muscles prominent, so that she appears more muscular. This state is strikingly obvious in old virgins. This subtegumentary fat is not found in the male, neither is fat deposited in the cellular tissue, generally, while the generative organs are vigorous. If a bull and an ox be fed for the same time, under the same circumstances, the latter will be fat when the former is "all beef."

This deposit of fat beneath the skin of females must not be confounded with that which takes place in spayed or castrated animals. In the latter it occurs because the system is less active from the absence of all generative impulse; in the former this impulse is the cause of it.

Parent du Chatelet, in the work before quoted, notices the embonpoint of the Parisian prostitutes, many of whom are perfect models of symmetry and grace. Some have attributed this state of the system to the use of mercury, and, in consequence, have actually recommended the administration of that drug to expedite the fattening of animals. Du Chatelet himself attributes it to inactivity of life, rich food, and the frequent use of the warm bath. A prostitute, aged 21, of the lowest class, was brought to the hospital severely burnt. She was from the country, had been on the town two years, and certainly could not have indulged in rich food or the warm bath, yet she presented all the health and symmetry described by Du Chatelet. It is more than probable that these appearances, as well as the harsh voice of prostitutes, have the same sexual origin. Whatever may be the cause, we have the same appearance in the hysterical female, with this addition, that the skin is softer and fairer.

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[*] De Causis et Signis Acut. Morb. lib. ii. cap. xii.

This hysterical embonpoint is a most constant symptom. It is somewhat analogous to the development of the mammæ before noticed, and, like the latter, may assist materially in forming a diagnosis between hysteria and diseases resembling it. With this state of the surface the appetite is much impaired or abolished. the most minute portion of food, and that only farinaceous, being taken for months together. Yet, to the great surprise of every one, the limbs, mammæ, and trunk, continue round and plump. Indeed the most common subjects of hysteria are those endowed with this brilliant plumpness of the surface and delicacy of finish.

That this state is dependent upon some condition of the ovaries, may be admitted as the true explanation, and accounts for phenomena, considered so extraordinary until lately, as to be altogether incredible, but which, nevertheless, are real, and quite in accordance with the other phenomena of the disease.

This hysterical embonpoint is a very hopeful appearance. A female thus formed will triumph over the most prolonged anorexia, the severest forms of nervous disease, as coma, catalepsy, paralysis, and tetanus, and even the crowded leech-glass, and the lancet, so dangerous in many of these cases. After the most extraordinary suffering, the catamenia appear, or the patient marries, and perfect health follows.

Hairy Scalp.—It is probable that the luxuriant tresses of the female are dependent on the ovaries, but, in the absence of any thing positive, I shall not enter into details. The scalp is most frequently the seat of a circumscribed *neuralgia*, commonly termed the *clavus hystericus*, and also of the distressing headach which accompanies hysteria. The latter very frequently alternates with toothache, dyspnœa, and colic. The neuralgia is frequently on the median line, or on the vertex.

Change of Colour.—The face occasionally becomes dark in pregnancy. Le Cat, Camper, and Gardien have been frequently quoted as authorities. In the Philosophical Transactions * it is related that the face of a girl, aged 16, suffering from amenorrhœa, turned suddenly black like a negro. The black matter could be easily wiped off, the skin being white underneath. It was of an unctuous consistence.

Dark under eyelid is common in females after coition (and, I believe, in males), also during pregnancy, and in amenorrhœa. It is a common symptom of hysteria.

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* Abrid. Vol. vi. p. 55.

Herpetic and other eruptions are frequently noticed in hysteria. Dr Davis has noticed them particularly as being frequently connected with morbid states of the generative organs. Profuse sweats are very common, and are exactly analogous to the *diabetes insipidus* and ptyalism of hysterical females, as was long ago asserted by Whytt * and Sydenham. † This functional relation of the kidneys, salivary glands, and perspiratory organs of the cutis, is frequently observed in other diseases. Erratic discharges most frequently occur from surfaces having an originally organic or functional relation with the generative organs; as the surface of the neck, thorax, groin, &c.

SECOND CLASS OF ORGANS.—The parotid and other salivary glands, thyroid body, pharynx, œsophagus, ears, and teeth.

These organs have a much less intimate connection with the ovaries than the preceding. There are, however, certain phenomena continually occurring in which they are implicated, and which show that they have more than a general sympathy with the ovaria.

Parotid gland.—This, as is well known, is occasionally affected by an epidemic disease, vulgarly called the mumps. The gland becomes swelled and painful, and so continues for two or three days, when the testes of males and mammæ of females become enlarged, and forthwith the parotid is restored to its natural state. Attention does not appear to have been directed to the state of the ovaries, when this disease has affected females, the more obvious condition of the mammæ arresting inquiry. It is probable that the ovaries are enlarged. We must be content, however, to remain ignorant of their real condition, as the only effectual method of ascertaining it is by an examination from the rectum,—a measure few practitioners would adopt on account of the age and sex of the patient.

It is very curious that parotitis most commonly attacks the left gland, and by metastasis the left testicle or breast. Mr Noble has recorded a history of its epidemic prevalence on board a ship of war. ‡ The left testicle was most frequently affected, and the metastasis was to the same side as the affected gland without a single exception.

A man of feminine voice, lately in this hospital, had abscess of the left parotid, with salivary fistula and abscess of the left testicle. A man and woman in the hospital at the same time had *spina ventosa* of the left side of the lower jaw, and abscess in the corresponding region of the parotid gland; the man had chorea. In idiopathic affections of the testicle, the left suffers in fifteen cases of twenty; and in an equal ratio the left remains in the abdomen in cases of non-descent of the testes. Louis has shown how much more frequently the left lung suffers than the right in pulmonary diseases. *Fistula lachrymalis* is much more frequent in the left than the right side. Every body knows the inferior power of the left extremities. In free-martins and those mal-conformed individuals who possess some of the characters of both sexes, an ovary is generally found on the left side, and a testicle on the right. Now these bodies are formed out of the false kidneys, which shrink in proportion as the former and the true kidneys advance in development. In birds, the right false kidney begins to shrink before the left has reached its full size, and has disappeared entirely at a time when the left is of considerable magnitude.[*] This last circumstance gives an air of probability to the speculations of the transcendental physiologists on this curious subject. Pain of the left mammæ is one of the most common symptoms in hysteria. Systematic writers notice that females are rarely affected with cancer of the lip, but are subject to scirrhous disease of the parotid at the cessation of the catamenia, just as they are subject to cancer of the mammæ, uterus, and ovaries. A female patient of the hospital has something like scirrhus of the left tonsil, another, of the left root of the tongue. It would not be difficult to adduce a variety of facts from the stores of comparative anatomy and physiology, illustrating, perhaps, only remotely, the connection between the salivary glands and ovaries. I shall confine myself, however, to more practical and obvious relations.

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* Op. citato, p. 597. † Works by Wallis, V. ii. p. 123, 8vo, London, 1788.

‡ Edinburgh Medical and Surgical Journal, Vol. iv. p. 304.

That the salivary glands are affected in pregnancy is well established. Mauriceau[†] mentions increased spitting as a sign of pregnancy. According to Dewees almost all women have a more than ordinary share of saliva secreted during gestation. In one case the quantity amounted to from one to three quarts per diem;[‡] he says the American women call it "spitting English shillings" or "cotton."[§] In Ireland, according to Dr Cummin,[||] pregnant women are said by the vulgar to be "spitting long spits." Dr Montgomery[¶] also notices this symptom, and, indeed, it is well known to most general practitioners. It occasionally becomes severe, just as we may have galactirrhœa, menorrhagia, &c. and it then excites more particular notice. Dewees mentions one instance; and in a recent German periodical, the cases of two females are reported in whom it occurred during fifteen successive pregnancies.[**]

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[*] Mayo's Outlines of Human Physiology, third edition, p. 408.

[†] Traité des Maladies des Femmes Grosses, &c. 6me ed. Tome i. p. 69.

[‡] Comp. System of Midwifery, 8vo, London, 1825, p. 115.

[§] Ibid. p. 104.

[||] Lectures on Forensic Medicine in Medical Gazette, Vol. xix. p. 436.

[¶] Operibus citat.

[**] Wochenschrift für die Gesammte Heilkunde, Sep. 1835.

Chambon de Montaux examined the fluid vomited by pregnant women, found it to be like saliva, and concluded it to be *pancreatic.*[*] The following may complete these illustrations. A lady, of delicate constitution, and subject to leucorrhœa, for two or three days after her second confinement, had a free discharge of the lochia ; they then were suddenly suppressed ; the head became affected with stupor and giddiness ; the face swelled ; and copious ptyalism came on, and continued several days. So soon as the lochial discharge was restored, the salivation was arrested.[†] I have known two instances in which spontaneous salivation accompanied painful varicocele.

We may now readily conceive why salivation occurs occasionally in hysteria. Perhaps it is really present in a slight degree much more frequently than it is noticed, being overlooked, as is aphonia, from the presence of graver symptoms. Sydenham says hysteric subjects will spit a thin saliva for many weeks, as if it were produced by mercury.[‡] Whytt notices it repeatedly, and attributes it to "an unusual motion of the vessels."[§] Cheyne[||] remarks that it is common in vapours, and "usually said to be of scorbutic origin," alluding probably to the occasional red colour of the saliva. Mauriceau,[¶] Stoll,[**] Rowley,[††] Darwin,[‡‡] Villermay,[§§] and Burrows,[||||] all notice salivation as a symptom of hysteria. The fact is abundantly illustrated in the preceding cases. It is not quite certain that in all the fluid comes from the salivary glands, for (as Dr Graves[¶¶] has already remarked,) there is reason to think that it is secreted from the fauces.

Dryness of the mouth is common in other diseases, as well as in hysteria, and on this account has not been particularly noticed. It seems to arise from a diminished secretion of saliva. Case thirty-six is a good instance of it. The symptom is worthy notice, because when in a marked form it might readily cause the practitioner to suppose his patient had severe typhus, or a gastro-enteritе, a mistake if acted on which would lead to dangerous treatment.

Enlargement of the tonsils is a very constant annoyance to the hysterical female. The secretions of these bodies contribute to the *fœtor* of the saliva observed in some cases. Case 1. is a good instance. The tonsils are much more frequently enlarged in general with females than males, and, like the parotid gland, mammæ, &c. are attacked by scirrhus on the cessation of the generative nisus. The left, I have observed, suffers oftener than the right.

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[*] Des Malad. des Grossesses, 8vo, Paris, 1785, Tome i. p. 135.

[†] Pract. Obs. on Disorders of the Stomach, &c. ,By George Rees, M. D. p. 37, 8vo, London, 1810.

[‡] Op. cit Vol. ii. p. 105.

[§] Works by his Son, 4to, p. 531, 533, 599.

[||] The English Malady, &c. Dublin, 1733, p. 146.

[¶] Op. cit. Tome i, p. 452.

[**] *Ratio Medendi*, &c. Viennæ, 1789, pars vii. Index.

[††] On female, nervous, hysterical, &c. diseases, p. 143, 8vo, London 1788.

[‡‡] Zoonomia, 3d edition. Vol. iii. p. 261.

[§§] Dict. des. Sc. Med. Art. Hysterie, Tome xxiii. p. 249.

[||||] Comment. &c. on Insanity, p. 193.

[¶¶] In a recent volume of the Dublin Journal.

THE THYROID BODY.—Hitherto little positive knowledge has been obtained respecting the uses of this structure. Speculations about them have not been wanting. The latest, perhaps, certainly the most novel, are those of Sir A. Carlisle, who considers the uses of the thyroid body to consist in keeping the larynx warm. The spleen, according to the worthy Knight, has a similar office to perform towards the stomach.[*] Considering the proximity of the thyroid body to the larynx, it is not unreasonable to suppose that the two are in some way connected.

Morgagni, examining the question whether this structure be glandular, or have a duct, quotes various authorities [†] without any positive result. Mr White, a correspondent of the Medical and Physical Journal,[‡] satisfactorily ascertained that in the horse it is a mucous gland. He states that the termination of its ducts may be readily seen as minute papillary eminences, especially on the epiglottis and anterior parts of the larynx. The excretory ducts are continued down over the *rima glottidis* into the trachea, especially its posterior part. He thinks an increased secretion from it is a cause of roaring. Bordeu thought he discovered the terminating ducts in the first ring of the trachea in the human subject. The researches of Sir A. Cooper, and more recently of Mr King,[§] show that the thyroid body secretes a glairy fluid which is poured into the absorbents. Our principal knowledge of this body is comprised in the history of bronchocele, for unfortunately, unless increased in magnitude, it is seldom made an object of pathological investigation. This disease is almost peculiar to females,—a fact most writers notice. It is perhaps as much so as hysteria or any other disease of the sex, if its hereditary and accidental occurrence in males be excluded. Of thirteen cases of bronchocele observed by Dr Clarke in the General Hospital at Nottinhgam, twelve were in females.[‖] Dr Manson of the same place gives a tabular view[¶] of 106 cases of bronchocele he treated; of these 100 were females. .Dr Sacchi[**] describes the bronchocele peculiar to young girls and women, as consisting in a simple hypertrophy of its structure; a change we have already found to occur in the mammæ, and which probably takes place in the tonsils also. There cannot be a doubt that calcareous water will produce bronchocele in both male and female, just as miasm or any other general morbific agent will produce its corresponding disease.

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[*] In a paper read before the London College of Physicians, Med. Gazette, Vol. iii. p. 617.

[†] Adversaria Anatom. i. p. 33, ed. 3a, 4to, Lug. Batav. 1723.

[‡] Vol. xlv, p. 284.

[§] Guy's Hospital Reports, Vol, i, p. 429, 8vo, London, 1836,

[‖] Edin. Medical and Surg. Journal, Vol. iv. p. 279.

[¶] Med. Researches on the effects of Iodine in Bronchocele, &c. 8vo, 1825.

[**] Annali Univ. di Medic. Dec. 1832.

Whatever connection the thyroid body may have with the larynx, it certainly influences, and is influenced by, the generative nisus. A great proportion of the children born of goitrous women are idiots, with large heads, and the distinguishing marks of Cretinism, not only in the Alpine valleys, but also at Edmonton; (according to Dr Richardson in Franklin's Narrative) where the disease is plainly owing to the river water. I know a woman with a large bronchocele, several of whose children have various congenital imperfections, stuttering, deafness, and mental imbecility.

Professor Odier in his Manuel de Medecine Pratique, says, that the disease makes the most rapid progress in females during their lying-in.

Most writers agree in making bronchocele a disease of puberty. Dr Copland never met with it in females before that epoch, and seldom observed an instance unconnected with uterine disorder.

It is certainly affected at the catamenial periods. A young female now attends at the hospital as an out patient for a bronchocele. She is of spare habit, and has inharmonious voice, and hairy upper lip. At every catamenial period, she assures me the tumour enlarges, and she expectorates a large quantity of glairy mucus streaked with gray lines, which she is confident comes from the tumour. Dr Reid has frequently noticed the connection between bronchocele and obstructed catamenia.* He gives a curious instance from Verdun of vicarious menstruation from its surface. Dr Reid also states that the custom of the ancients of measuring the bride's neck the day after marriage is practised even now in Germany. The neck of females certainly thickens at puberty, and probably after sexual congress, as shown by the statements just given. Indeed, this appearance was formerly considered one of the signs of rape, an opinion Cabanis is at some pains to disprove.†

Nov. 8

I have carefully avoided all allusion to the action of remedies, lest I should be led astray by false facts. I may be permitted, however, to notice the effect of iodine. This medicine, as is well known, is the most efficient remedy in bronchocele and hypertrophied tonsils. Lugol ‡ and various recent observers have recorded its power of exciting ptyalism. Lugol§ speaks of its emmenagogue powers, which observations have been since confirmed by various writers in the periodicals of the day, and quite satisfactorily to myself by my own experience. It has been accused by many of causing absorption of the testicles and mammæ. Dr Simpson, physician to the hospital, has mentioned a case lately to me confirmatory of the fact. It is well known, however, that this effect of the administration of iodine is strenuously denied. I have seen it administered to many patients of this hospital, without witnessing it. This doubtful effect probably depends upon the age of the patient. The elder Cline used to state in his course of twelve lectures on surgery, that, if mercury were given to youths at, or a little after puberty, the testicles would waste.* There is something analogous perhaps in the effects of iodine in this respect as well as in others; and it is not improbable that the same state of the ovaries which predisposes to bronchocele is a cause of the special action of iodine upon structures connected with them. These remarks will sufficiently show the room there is for minute research into the relations of the thyroid body; it being my object rather to call attention to its relations with the generative organs, than, in the present want of positive information, consider it implicated in any of the symptoms of hysteria. It may be connected with the tumefaction of the throat noticed in hysteria; and also have a share in exciting some of the curious coughs to which females are subject.

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* On Bronchocele in Vol. xlvi. of this Journal p. 45 and sqq.

† Rapports sur la Physique, &c. de l'Homme Tome i. p, 283.

‡ Essays on the effects of Iodine in Scrofulous Diseases, in Trans., by Dr O'Shaugnessy, p. 20, 8vo. Lond. 1831.

§ Ibid. p. 23.

The expectoration of hysterical patients is rarely from the lungs, unless complicated with pulmonary disease: it is generally watery or slightly mucous; frequently of various shades of colour, from a brown to a deep red. It unquestionably comes from the salivary glands, tonsils, thyroid body, or the surfaces contiguous to these organs. Aretæus alludes probably to an expectoration of this kind, when writing on Hæmoptoe. "Frequently the rupture takes place in the gullet, and if so, the blood does not flow in large quantities as from the chest; it is not very dark, but rather of a yellowish colour; is not exactly homogeneous; and is mixed with saliva. It is rejected with nausea and vomiting, and there is a slight cough. Sometimes if the disease is prolonged and becomes chronic, the patients have a great dislike to food and vomit it. The fever is by no means long continued, but is erratic.†" I know of no form of bloody sputa to which this description so exactly answers as that of hysterical patients. Its chronic form, the erratic fever, vomiting, dislike of food, and nature of sputa, are almost pathognomonic.

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* For this information I am indebted to Dr Simpson, who attended Cline's Lectures, and has a MS. copy of them. I am also happy to acknowledge the kindness of Dr Simpson on other occasions.

† De Causis et Sig. acut. Morb. Lib. ii, cap. ii,

FAUCES, PHARYNX, and ŒSOPHAGUS.—Consistently with my arrangement, these structures ought to be considered in the 4th Class. They have, however, such a close anatomical and functional connection with the preceding, as to merit notice here.

Vomiting, very obstinate and long-continued, is a symptom of hysteria as well as of pregnancy in the early months, and doubtless arises from a similar cause. This has been sought for in the stomach, as if nausea and vomiting could arise from no other cause than irritation of that viscus. The most modern explanation is founded on the sympathy which is supposed to exist between the uterus and stomach. This is no explanation whatever. The various fanciful notions of the older writers need not be repeated; two may be mentioned as specimens of the others. Ettmuller * attributed the vomiting of pregnancy partly to the force of the genital aura, and partly to a fermentative motion of the humours, arising from the repression of the menses. Haller to a putrid principle in the semen, entering the circulation, and acting like a putrid miasm.

It may occur with various degrees of intensity, from simple morning retching to the most dreadful straining. Pechlin mentions an odd instance of its extravagant effect. "Gravidam nempè post conceptum viri aspectus et oscula concubitumque ita fastidisse ac fugisse, ut appropinquante marito, nausea vomituque afficeretur."† Most accoucheurs must have met with cases somewhat similar. It is a state analogous to that which occurs to the females of brutes after conception.

This vomiting is not peculiar to pregnancy or hysteria, but may occur in other states of the ovaries. La Motte knew a female, not pregnant, who vomited "sola actione coitus;"‡ and two others who had violent vomiting at each menstrual period. § Morning vomiting is not uncommon in amenorrhœa and at the cessation of the menses.

Irritation about the fauces, as is well known, will excite vomiting, and it is very probable that the same excitement which affects the salivary glands, tonsils, and larynx, is extended to the fauces, pharynx, and œsophagus. The morning vomiting of the pregnant is generally accompanied with the spasmodic cough, before noticed as the cradle cough, and with violent retching, terminating in vomiting. These phenomena occurring in the same order as from the application of mechanical stimuli to the pharynx

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* De Morb, Mulier, sect. vi. cap. iv.

† Obs. Physic.-Med. Lib. i. Obs. 45.

‡ In Arte Obstet. p. 54, 4to, Lug. Batav. 1733.

§ Ibid. p. 75.

and fauces. I know a man subject to irritation about the fauces who frequently suffers from spasmodic cough, violent retching, and vomiting upon getting out of bed.

It is well established that the stomach takes very little part in the mechanism of vomiting, and much less than is suspected in exciting it into action. Chirac, a century and a half ago, and Magendie more recently, have very satisfactorily shown, that the diaphragm and abdominal muscles are the principal agents in that mechanism.

The excitement of the respiratory muscles to action in vomiting suggests an explanation of some curious phenomena of hysteria in which they are equally implicated. These are an alternate contraction and relaxation of the abdominal and thoracic parietes; anhelation, hiccup, and frequent yawning. Sauvages refers to cases of the latter related by Höchstetter and Riedlin. *

Nausea is a symptom closely connected with vomiting, and has the same origin.

Frequent sipping is an effort to alleviate a distressing irritation in the pharynx, which, when unrelieved, causes laryngeal spasm. The patient finds the constant trickling of fluid and the effort to swallow effectual in preventing closure of the *rima glottidis*; what share the epiglottis may have in the phenomenon it is difficult to say. Case 52 is a very good example.

Dread of water is occasionally a symptom, at least fear of swallowing any, the patient feeling as if it would choke her, and having a spasm of the throat, and a sensation like that following the dash of the shower-bath.† This state may also depend upon pharyngeal irritation. It has been observed in nymphomania. ‡ In cases of true hydrophobia the most constant pathological appearance is inflammation of the pharynx and œsophagus.

It is well known that erection of the penis occurs in hydrophobia; and Darwin says also in violent coughs, accompanied with soreness or rawness about the fauces. These and the erection which accompanies hanging, he attributes to some stimulus about the throat. § The connection of rabies with the salivary glands may tend to confirm the reports respecting the utility of mercury as a prophylactic in bites from rabid animals.

Dysphagia.—In all organs implicated in hysteria two opposite states of the nervous system may be observed. There may be anæsthesia or increased sensibility; paralysis or spasmodic action; arrested secretion or profluvium. In paralysis of the laryngeal muscles we have aphonia—in spasm, dyspnœa. So spasm and paralysis of the muscles of the pharynx and of the œsophagus cause dysphagia. In the one case there is no contraction on the bolus, in the other the tube is closed. In the latter it is shut equally against the egress as the ingress of anything, so that flatus ascending from the stomach cannot escape. Accumulating in the œsophagus at the point strictured by the spasm, it forms a tumour which compresses the trachea, and constitutes the *globus hystericus.** This pressure, however, is not the invariable cause of the dyspnœa in a fit of hysteria, for the glottis is also involved in the spasm which affects the œsophagus. Lobstein gives an excellent illustration in his work on the sympathetic nerve.

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* Nosol. Meth. Tom. i. p. 633.

† Illustrative case quoted in Lond. Med. Gaz. Vol. xiv. p. 223.

‡ Villermay, Art. Nymphomanie in Dict. des. Sc. Med. p. 573.

§ *Zoonomia*, Vol. iv. p. 199.

Discharges from the ears of various fluids will have been noticed as a symptom in some of the preceding cases. It is very possible that these fluids may have been forced through the Eustachian tube by a voluntary effort. Hysterical girls will feign anything. The pieces of bone found in the *meatus auditorius* of H. O. (Case 1. Vol. xlix. p. 78) were unquestionably placed there by herself; yet she really had sanguineous discharges from the ears. May not the Eustachian tube be involved in the same excitement as the salivary glands, tonsils, pharynx, &c.?

THE TEETH.—*Toothache* is a very common symptom in pregnancy and hysteria. The teeth, like the beard, horns, and other appendages of the skin, are remarkably connected with the testicles and ovaries. The removal of the boar's tusks destroys his violent sexual propensities.† Other instances will occur to the student of natural history. I have observed an infantile size of the central upper incisors connected with retarded development in females, and with a childish love of sweets.

Dr Ashburner advocates very strenuously the doctrine, that hysteria is frequently caused or aggravated by an anormal condition of the teeth, and gives a large number of illustrative cases.‡ He remarks that those females who have the first bicuspid thrust outwards and the second inwards are particularly subject to pain under the margin of the ribs on the left side. Closure of the glottis is a common affection of infants during dentition.

THE NECK *in general.*—The consideration of this part of the subject is out of place here, but I allude to it as introductory to the next class. The form and muscular development of the neck in males has a close connection with the testicles, as is evinced in man, and the stallion, buck, bull, and boar; castration altogether lessening the size of the neck, and making the loins heavier : these remarks are particularly applicable to the 4th Class.

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* Rowley, Op. cit. p. 57.

† Dr Elliotson, Human Physiology, Part ii. p. 440, quoted from White's Natural History of Selbourne.

‡ Lond. Med. Gaz. Vol. xiii.

THIRD CLASS.

The changes which take place in the cervical region of males at the time the testicles are evolved have their analogue in the lumbar region of females. The pelvis arrives at its normal form and size concurrently with the ovaries. We have not sufficiently numerous observations to enable us to say positively that the development of the former is dependent on, and governed by, that of the latter; all analogical reasoning is in favour of the doctrine.

The removal of the ovaries and testicles allows a deposit of fat to take place about the kidneys in the lower animals, and their shrinking in man is followed by the same deposit.

THE KIDNEYS originate from the same primary structure of the fœtus as the ovaries and testicles; during the middle months of fœtal life, and in many lower animals, these organs are in intimate anatomical relation; a relation which still holds in the adult man as regards their vascular and nervous systems. Thus not unfrequently the spermatic artery is a branch of the renal. The retraction of the testicle and numbness of the thigh in affections of the kidney, calculi in the ureters, &c. are evidence of the close relation of their nervous systems. These and the phenomena of hysteria might amply suffice to show the connection between them; but there are other facts which may be quoted. Hunter,[*] and afterwards Underwood,[†] remarked the connection between the teeth and kidneys and bladder in children; the growth of the former being accompanied with increased flow of urine, symptoms of gonorrhœa and of stone in the bladder, and involuntary micturition. Mr Bingham corroborates these observations, and in addition, states that he had two patients with disease of the urinary organs, who always experienced a tingling sensation about the throat and ears when they wanted to make water.[‡] Dr C. H. Parry saw the metastasis to the testicle in mumps accompanied with an obstinate suppression of urine, which long required the use of the catheter.[§] Mercury in large quantities will pass off by the kidneys, causing diuresis without affecting the salivary glands in the least,[‖] and discharges from the kidney and salivary glands alternate [¶]. Whytt gives the case of a female in whom there was bloody urine in four successive pregnancies,[*] and Dr Montgomery notices the peculiar urine of pregnant women.[†] In *diabetes mellitus* the sexual desire is extinguished. Dr Montgomery mentions a case recorded in Osan's Clinical Report for 1823 of a young woman who, in three successive pregnancies, was affected with *diabetes mellitus.* It completely ceased after delivery, but always returned when she again conceived.[‡]

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[*] The Natural History of the Human Teeth, p. 234, 3d ed. 4to, 1803.

[†] On Diseases of Children, ninth ed. edited by Dr M. Hall, p. 252, Lond. 1835.

[‡] Essays on Diseases of the Urethra and Testes, p. 31, Lond. 1820.

[§] Elements of Pathology and Therapeutics, Vol. i. p. 384, 8vo Bath and Lond. 1815.

[‖] Medical and Phys. Journal, Vol. xviii. p. 331.

[¶] Haller, Elem. Physiol. Tom. ii. p. 371 (from Cammerarius.)

Macculloch relates the history of a man who had an intermittent *diabetes mellitus* recurring with the most perfect regularity, and accompanied by a complete hysterical paroxysm.[§]

It may, however, be considered unnecessary to multiply instances of the connection between the kidneys and ovaries, since the long list of cases under the head of hysterical Ischuria so amply illustrates it,—not to mention the succeeding histories. It appears, indeed, that some alteration in the quantity or composition of the urinary secretion is one of the most constant symptoms of hysteria, even in its mildest form, when the patient can only be said to have a hysterical constitution.

Excessive flow of urine is precisely analogous to the profuse sweats and salivation of hysterical females. It terminates a common paroxysm of hysteria, but is observed in the chronic form. In the latter there is almost invariably diminished urinary secretion. Practitioners will scarcely be aware how frequently it happens, unless they question their patients closely. It is by no means uncommon for the urine to amount to no more than three or four ounces in twenty-four hours, particularly during the catamenial period. I have seen several instances in this hospital independently of those already given.

Total suppression of urine for several days or weeks is the rarest form, but certainly occurs, as shown by cases in my former paper.

The composition of the urine varies considerably according to the form the disease assumes. That of the common paroxysm is well known to be aqueous with little urea.[||] In chronic or aggravated hysteria, the urine frequently resembles that of paraplegic patients, being alkaline, and depositing the triple phosphate in abundance.[¶] This condition of the urine is also observed in persons exhausted by excessive study, bad diet, and other depressing agencies.[**] This alkalinity of the urine is frequently accompanied with a mucous deposit, which stops up the catheter. Both, it would seem, are derived from the mucous membrane of the bladder. The opinion that the phosphate of lime is derived from the latter, is noticed by Prout, as being by no means novel; * it is usually combined with the carbonate of soda, and the ropy mucus secreted by the mucous membrane. Mr T. B. Curling thinks the alkaline urine in paraplegic patients, &c. is caused, primarily, by the morbid secretions of the bladder, and secondarily by the altered secretions of the kidneys themselves.† Sand and calculi, it would appear, are formed in some very aggravated cases. (No. 3, 5, 8, 28.) This symptom probably depends upon a state of the general system, analogous to the gouty. It will be noticed in a future part of the analysis. In Case 5 there was the rare black deposit.

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[*] Works, by his Son, p. 594, note.

[†] Cyclop. Pract. Med. Vol. iii. p. 489. [‡] Ibid.

[§] An Essay on Intermittent and Remittent Dis. &c. Vol. ii. p. 95 8vo. Lond. 1828.

[||] Golding and Brett, London Medical Gazette, Vol. xii. p. 387.

[¶] Sir B. Brodie, Lect. on Dis. of the Urinary Organs in Ibid. Vol. viii. p. 7. and published separately, p. 162, (8vo, London, 1832.)

[**] Op. cit. My friend, Mr Barker, Lecturer on Chemistry, at the York Medical

Albuminous urine is not at all uncommon in hysteria. Perhaps the milky appearance mentioned by some writers ‡ as peculiar to pregnancy is analogous.

BLADDER.—Its secretions have been just noticed; the paralysis will be considered with that of

THE LARGE INTESTINE.—Flatus is very commonly generated in cases of hysteria. Gas may be secreted from any mucous surface. Thus, occasionally, large and noisy discharges of flatus from the uterus take place many times a-day. § I have read a case or cases of similar discharges from the urethra.

That the skin secretes carbonic acid, was shown by Count de Milly, Jurine, Ingenhouz, and Abernethy; and, indeed, in frogs and other animals it may perform the functions of the lungs || whose special office in the economy is the secretion and absorption of gaseous matter. Hunter ascribed similar powers to the mucous membrane of the intestinal canal; and I am not aware that any one at the present day doubts this opinion. It is probable that the stomach, cæcum, and colon are more particularly implicated in these gaseous secretions. Recent researches¶ have shown that under certain conditions, a second digestion goes on in the cæcum, and that in function it is really an auxiliary of the stomach of graminivorous animals. Aretæus represents digestion to take place in the colon. ** It does not appear that the peculiar smell of the feces is altogether derived from the gaseous products. Perhaps

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School, has made numerous observations on the urine in such cases, and found it to have a slightly acid reaction when voided; within a very short time, however, or, on cooling, the urine becomes alkaline.

[*] Inquiry into the nature, &c. of gravel, &c. London, 1821, p. 155.

[†] Lond. Med. Gazette, Vol. xviii. p. 325. [‡] Dr Montgomery in op. cit.

[§] An account of the most important diseases of women, by R. Gooch, M. D. p. 242, London, 1829.

[||] On the influence of Physical Agents on life by W. F. Edwards, M. D. translated by Hodgkin and Fisher, p. 12, 28, 37, 8vo, Lond. 1832.

[¶] Of Tiedemann and Gmelin, Edin. Med. and Surg. Journ. Vol. xxviii. p. 373, 377, and of Dr Schultze in Ibid. Vol. xliv. p. 409.

[**] De Causis et Signis Diutur. affect. Lib. i. cap. xv.

it is owing to a fluid excrementitious secretion from the large intestines analogous to that from the follicles of the tonsils. However this may be, Magendie and Chevreul met with only a trace of sulphuretted hydrogen gas in the gases found in the colon of two executed criminals. They principally consisted of carbonic acid, with varying proportions of nitrogen, hydrogen, and carburetted hydrogen; the two last being in smallest quantity.[*] Dr Osborne had a case of hysteria with constipation and tympanites, in which he introduced an elastic tube into the rectum, and pumped the gas from the distended colon. It was inodorous, and extinguished flame,[†] precisely the qualities which the mixture of gases analysed by Chevreul and Magendie would possess.

Borborygmi.—Mediate auscultation of the abdomen, and the sounds elicited by compressing the intestines of the dead body by the hand, very satisfactorily show the origin of the borborygmi so common in hysteria. A constant peristaltic and antiperistaltic action seems to be going on in a limited portion of bowel in which flatus is confined, either by spasmodic constriction of the intestine or arrested feces.

Hysterical females suffer more from tympanitic distension of the stomach and colon than of any other part of the alimentary canal. The flatus unquestionably originates in many cases in the cæcum or colon. It can be traced by the patient, and occasionally by the spectator, appearing through the parietes of the abdomen like a ball as it ascends from the pelvis, distending successively each portion of the tube, and at last being arrested by the spasmodic closure of the œsophagus, forming the *globus hystericus*. These phenomena gave origin to the hypothesis that the uterus ascended from the pelvis, and to the consequent treatment by fetid scents to the nostrils, and fragrant fumigations of the vulva.

Tympanitic abdomen is caused by an increased secretion of these gases, analogous to the other hysterical profluvia, namely, from the uterus, skin, salivary glands, and kidneys. It is occasionally so enormous as to give the patient the appearance of advanced pregnancy. Some of the older writers attribute the non-expulsion of the gas to paralysis of the muscular fibres of the colon. Most probably this explanation is correct.

Paralysis of the colon, rectum, and bladder, causing *constipation* and *retention of urine*, is a real paralysis, and would appear exactly analogous to that which affects the larynx, pharynx, and œsophagus, causing aphonia and dysphagy.

It has been advanced by Sir B. C. Brodie,[‡] that this affection of the bladder is owing to the absence of all exercise of the volition. Nothing is directly stated in support of the opinion. The effect of strong moral emotion in overcoming the paralysis, may be thought corroborative. The effect of sudden surprise or terror in giving the power of locomotion to helpless paralysed patients has been frequently recorded, yet it has never been denied that in these, at least, there was a real paralysis. The hysterical retention of feces and urine may arise from deficient irritability of the mucous membrane of the viscera implicated, or there may be spasm of the sphincter resisting the usual contractions. In the one case distension by increasing the stimulus will relieve the retention; in the other, a moral cause will relax the sphincters. It must not be forgotten that the retention of urine is frequently connected with a partial suppression, so that we have diminished muscular power, diminished irritability, and diminished stimulus, all combining to produce that symptom. The effect of mental excitement in exalting and lowering the muscular power of individuals in good health is well known, but is a fact too generally applicable to be useful in illustration of the symptom under consideration, except in the same general way.

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[*] Magendie's Elem. of Physiology translated by Dr Milligan, p. 268. 4th ed. Edinburgh, 1831.

[†] London Medical Gazette, Vol. viii. p. 825.

[‡] Lect. in Ibid. Vol. xix. p. 246, also on local nervous Affections, p. 48, 8vo, London, 1837.

A patient with hysterical aphonia will certainly make the most painful and energetic efforts to articulate, without success.

The presence of *Scybalous feces* in the rectum and colon is a cause of constipation in hysteria, and probably occasionally of tympanites. They seem to be dependent on diminished secretion from the mucous surface of the intestines, or paralysis of the muscular fibres.

Diarrhœa, mentioned by Sydenham, Whytt, Pomme, and others, as a symptom of hysteria, is the converse of this, and may be classed with the profluvia already noticed. Its occasional monthly recurrence has been already mentioned; it will also assume the hebdomadal or tertian type.

Colic is a well known and very distressing affection of the hysterical, and in the majority of cases arises from confined flatus distending the colon. A pain which

> —"Vero longè dirissimus occupat omnem
> Inflexi tortum coli, rem nomine monstrat."*

It may be doubted, however, whether the pain be invariably seated in this portion of the intestine. I have witnessed a severe attack without any very obvious flatulent distension, and the latter to an enormous extent, without causing any colicky pains whatever. It may be on some occasions, neuralgia of one or other of the abdominal viscera.

Of *Pain in the hypochondria*, which is very common, I cannot find any satisfactory explanation. It has been referred to the liver, spleen, &c., but is probably neuralgic, and analogous to the pain under the right scapula caused by diseases of the liver.

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* Neuropathia, p. 41.

THE INFERIOR EXTREMITY OF THE SPINAL CHORD.—A large proportion of those symptoms, in which the back, abdomen, and lower extremities are implicated, are to be referred to some morbid state of part, or whole of this portion of the chord, or attached nerves.

Aching pain, and *tenderness on pressure* of *the loins*, almost constantly affect the hysterical female. These symptoms have given rise to the idea, that the pressure affected the chord itself, or the vertebræ; and the practitioner according to his bias, extended the patient for months on a board, as a case of "diseased spine," or leeched and blistered for "a tender and irritated state of the chord." Back-ache, however, as well as tenderness on pressing the veretebral column, is a common symptom of many diseases, totally unconnected with any particular disease of the spinal chord. The muscles of the back are, perhaps, never altogether relaxed, not even during sleep. A corpse will not remain on its side. In consequence of this continual tension, they are the first to feel fatigue when any cause debilitates the muscular system in general. Those who experienced a severe attack of the epidemic catarrh of last winter will not soon forget the intolerable pain they suffered at the time, in the loins and calves of the legs, exactly resembling the ache of great weariness. It is not at all surprising, that a debilitated female, unaccustomed to much muscular exertion, should constantly experience a pain in her back after maintaining the erect posture for a while.

Tenderness of the spinal column is very common in other diseases, as well as in hysteria. There is a man now in the hospital in whom the stethoscopic phenomena indicate organic pulmonary disease; pressure on the second or third dorsal vertebra will cause him to gasp. Dr Marshall records a similar observation.[*] I have noticed spinal irritation in a case of diseased heart, with dyspnœa, anasarca, and coagulable urine.[†] Dr Entz, a writer on irritation of the spinal marrow, [‡] has found spinal tenderness in almost every case of dysmenorrhœa, and in most cases of menorrhagia which have occurred of late years in his practice. According to the Messrs Griffin, spinal tenderness is an attendant on almost all hysterical complaints, and on numerous cases of functional disorder, and may arise from uterine disease, dyspepsia, worms, liver diseases, mental emotions, miasm of typhus and marshes, continued, erysipelatous, rheumatic and eruptive fevers, and pregnancy;[*] in the last, of the dorsal porion of the spine. There is no limit to statements of this kind. Taking the list given into consideration, are we warranted in saying that tenderness in any point of the spinal column is a mark of a diseased state of the corresponding portion of the spinal chord? for the doctrine of spinal irritation, stripped of its generalities, is comprised in the affirmative answer to this question.

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[*] Practical Obs. on Dis. of the Heart, Lungs, &c. caused by spinal irritation, 8vo, 1835.

[†] In a case of substernal aneurism, now in the hospital, under the care of Dr Belcombe, gasping is excited by pressing on one or two of the dorsal vertebræ, or by blowing on the patient's face.

[‡] In Rust's Magazin für die Gesammte Heilkunde, 1836.

Aware how little we know of the intimate relations and functions of vital organs, we are inclined to doubt a system of pathology presenting so easy and plausible an explanation of every irregular form of disease.

In affections commonly considered cases of spinal irritation, we sometimes have pain excited by pressing, or even touching gently any portion of the body, excepting perhaps the face. In most cases of tenderness, whether local or general, the severest pain is excited by pressure on the bony prominences. Thus the condyles of the femur will be more tender than the thick part of the thigh; and the patient will complain of the pressure as being equally painful, whether made on the spinous processes of the vertebræ or on the angles of the ribs. This I have verified repeatedly.

The median line of the trunk is occasionally more tender than any other part. In a female named Cleary, now in the hospital, under the care of Dr Simpson, a slight touch or gentle pressure on the first or second bone of the sternum, accordingly as the patient is more or less irritable, will cause cough immediately. I have ascertained the fact beyond doubt. If such tenderness were in the median line of the back, the chord would be pronounced tender by the advocates of the doctrines of spinal irritation. The patient I allude to has three or four tender points on the posterior median line. In this state of the nervous system, the transit of a nerve through an osseous foramen, or over any part where it is exposed to pressure, gives rise to pain at the extremity of that nerve. But an inspection of the vertebral column in an anatomical subject will show at once how impossible it is to press the chord, or the nerves going from it, in the slightest degree. The length of the cervical spines, and the overlapping of the dorsal, not to mention the strong ligaments and massy muscles covering the transverse processes, render the spinal chord as secure from pressure from without, as the brain.

Organic disease of the vertebræ may go on to an extraordinary extent, and also, even of the chord itself with very little or no tenderness of the vertebral column,[†] and but slight functional derangement of the organs in connection with the spinal chord. Velpeau has collected twenty-five cases of disorganization of the *medulla oblongata* without disturbance of the nervous functions. In some, four inches of the spinal chord was changed into a reddish fluid, so that he somewhat hastily infers the spinal marrow is not indispensable to sensation and motion.[*]

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[*] Obs. on the functional affections of the spinal chord and ganglionic nerves, by W. Griffin, M. D. and D. Griffin, M. R. C. S. p. 203, 8vo, Lond. 1834.

[†] Analytical Review of "Travers on Constitutional Irritation," in Medico-Chirurgical Review, Vol. xxiv. p. 44.

These considerations are advanced not to disprove the existence of that morbid state of the nervous system recently designated spinal irritation, but merely to show that tenderness of the spinal column is a sign of little value. It might farther be shown that the nervous fibrils of the tender part are in a state analogous to that of the nerves in subcutaneous tubercle, or in epilepsy accompanied with aura commencing at a diseased or irritated nerve.

This question I shall again notice. It is universally acknowledged, however, that irritation of the nerves of one organ may be communicated to those of a second, having an anatomical or functional connection. The catamenia are seldom established without aching and neuralgic pains of the back and lower extremities; partial anæsthesia, (numbness,) and tetanic contractions (cramps) of the legs. The action of the testicles on the muscles of the back in certain states is well known, causing an aching, which is merely a sense of fatigue arising from impaired power of the lumbar muscles. The transit of a calculus along the ureter will cause pain in the testicle, and a variety of sensations in the thighs. In the diseased bladder of old men there is very constantly painful heat and tenderness of the soles of the feet. Stricture of the urethra will excite numbness inside the knees; and pain in the loins, hip, down the thighs, and in the soles of the feet.[†] The introduction of a bougie will cause pain in the thigh, [‡] but the most curious instance of this kind is the counter-irritation, which the New Zealanders successfully practice in traumatic tetanus, by making the urethra the track of a coarse seton thread.[§] The cramps of diarrhœa, and other symptoms of a host of diseases implicating the abdominal viscera, might be mentioned, if not obvious to every one. There is scarcely a case recorded in these papers in which this principle of sympathetic irritation is not exemplified.

Spinal tenderness is dependent simply upon increased sensibility of the surface, and but one of many symptoms. It may indicate diseased vertebræ or spinal chord; but it has been so frequently observed in functional or organic diseases of the viscera, that it is really more indicative of the existence of the latter than the former.

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[*] Archives Gen. 1825.

[†] Mr Bingham, in Essays quoted, p. 31. [‡] Ibidem, 278.

[§] Such I have seen stated in some recent work on New Zealand or the Sandwich Islands.

This pathological connection of the spinal cord with disease of the abdominal and thoracic viscera has been noticed by Hoffmann, Boerhaave, and others, and is the foundation of the ganglionic as well as spinal pathology of hysterical, hypochondriacal, and nervous complaints.

Mr Stanley observed paraplegia in several cases to occur without any appreciable disease of the spinal cord or its membranes; the kidneys, however, were found inflamed and suppurated; and consequently Mr Stanley justly concludes, that the true source of the paraplegia was in the kidneys, the spinal cord being affected secondarily.* How frequently intestinal irritation will cause paralysis or convulsions is well known. I conceive that the ovaries in hysteria have a very analogous action upon the dorsal or lumbar portion of the spinal cord, either directly or indirectly through the kidneys, uterus, or large intestines.

That the ovaries can and do influence organs having an intimate anatomical or functional connection with them is most evident from the whole chain of symptoms characterizing the preceding cases, and referred to their proper heads in the subsequent analysis. At present I do not profess to explain the nature of this influence. I am content to ascertain its existence.

The reciprocal actions of the spinal nerves and abdominal viscera render the pathology and treatment of their diseases much more obscure and difficult than is generally suspected. The vigorous treatment adopted in peritonitis by most practitioners may have occasionally been directed against the tender tympanitic abdomen, constipated bowels, coated tongue, and quick pulse of a hysterical female, and the patient literally bled to death. Such instances may probably be in the recollection of the reader.

The symptoms referable to irritation of the lower spinal nerves are so obvious in the preceding cases as to require little more than enumeration.

Spasm attacking the abdominal muscles presents one form of hysterical colic, their partial contractions giving the abdomen a knotted surface. The flexors of the lower extremities are much more frequently affected than the extensors; tetanic flexion of the leg and the thigh, indeed, in varying degrees of severity, appears to be rather a common symptom. Sometimes this state becomes chronic, but frequently disappears suddenly, either by metastasis or removal of the exciting cause.

Paralysis appears under a variety of forms, and may be either local or general. Sometimes the lumbar muscles are affected, and the patient cannot sit upright;—or the abdominal muscles, and we have a feeling of sinking, or constipation and retention of urine. Occasionally the gastrocnemii or peronei only are affected, and the foot is distorted. Increased sensibility is very common. Tenderness of the abdomen need only be mentioned. It is the great simulator of peritonitis, but is much less rarely mistaken for that disease, since the able researches of the writers on spinal irritation. Tenderness of the back and sides is frequently mistaken for the latter complaint, as is evident from the cases published as instances of that affection. Pain and tenderness of the knee is now well known as the hysterical knee, and has been well described and distinguished by Sir B. C. Brodie. Its most usual seat is on the inside of the joint, and is probably analogous to the affection of the knee, which is symptomatic of diseased hip.

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* Medico-Chirurgical Transactions, Vol. xviii. p. 278.

This symptom is obviously seated in the cutaneous branches of the anterior crural nerve. It has often been mistaken for white swelling of the knee-joint.

Various neuralgic pains, especially of the soles of the feet; a sensation of heat, termed by the patient flushings; partial or general formication, are all of the same class.

Partial sweats, principally on the loins and feet, are occasionally complained of.

FOURTH CLASS.—THE CERVICAL REGION.

The remarks now made are equally applicable to the symptoms referable to the cervical portion of the spinal cord, and to the contiguous organs. Each of the latter are subject more particularly to increased sensibility; hence a variety of neuralgic pains referred to various parts of the head, face, neck, and breast, according as the mammæ, thyroid body, salivary glands, tonsils, and teeth are implicated. Paralysis of the muscles of the fore-arm, causing weak wrist, trismus, tetanus, and increased sensibility, local or general, of the upper extremity; partial opisthotonos, sneezing, and a variety of other symptoms, which I cannot even mention on account of the extent to which I have already carried this part of the analysis, are referable to irritation of the spinal nerves of the cervical region.

THE PSYCHOLOGICAL PHENOMENA of hysteria having a relation to the generative functions are next to be noticed. I enter upon this part of the subject with considerable reluctance. It is difficult, from its complicated physiological and moral relations. Man is an animal, and as such, he is under the guidance of his preservative and reproductive faculties, of which, as an animal, his intellectual faculties form but a part. Revelation, however, assures us he was made in the image of God. To that Supreme Being he is responsible for his actions, and by Him, man is required to make all those animal faculties which govern brutes subservient to his high destiny,—an eternal communion with his Maker.

The faculties of the mind by which sexual congress and the other generative acts are directed alone concern us; yet it is difficult to isolate them; for the generative nisus influences the whole of the phenomena of mind.

The excited appetite for sexual gratification is as urgent as that for food under the stimulus of hunger. In both cases we find the natural ferocity and timidity of animals towards man and each other, increased and diminished with a force and uniformity truly remarkable.

The desperate combats of the males, especially of gregarious animals, at the breeding season, is well known. Hunters and destroyers of vermin frequently make use of the generative odours as an irresistible lure of animals to their capture and destruction. By this means the housebreaker silences and tames the most ferocious house-dog. The love of offspring acts with equal force on the female. The timid hare will attack the eagle in defence of its leveret. Instances illustrative of the force of this sexual faculty might be drawn from the history of every species of animal.

These, and other mental changes consequent upon the generative impulse, do not take place simultaneously. The war among the males of gregarious animals terminates with the business of conception, and before the birth of the young. At this time, the female, so far from being bold and quarrelsome, is most timid and cautious.

Indeed one of the most remarkable of the faculties, and peculiar to the females of the higher classes of animals is their artfulness or dissimulation; and seems to be given in place of those weapons of offence and defence with which the males are so generally provided.

The less muscular power, want of defensive weapons, and exalted perceptive faculties[*] of females would naturally engender a degree of timidity and cunning. Consequently, these attributes have been considered, and with truth, as essentially a part of the feminine constitution. Cabanis, after numerous interesting remarks on the mental and corporeal constitution of the human male and female, emphatically concludes, "Il faut que l'homme soit fort, audacieux, entreprenant; qui la femme soit faible, timide, dissimulée."[†]

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[*] "Vainement l'art du monde couvre-t-il et les individus, et leurs passions, de son voile uniforme: la sagacitè de la femme y démêle facilement chaque trait et chaque nuance.—S'il est permis de parler ainsi, son œil entend toutes les paroles, son oreille voit tous les mouvements; et, par le comble de l'art, elle sait presque toujours faire disparaître cette continuelle observation sous l'apparence de l'étourderie ou d'un timide embarras." Rapport du Physique, &c. de l'Homme, Tome i. p. 305, 3me ed.

[†] Op. cit. p. 294.

These observations must be strictly confined to woman considered as a mere animal, and seeking, in common with brutes, the maintenance of her existence, and the gratification of her sensual pleasures. These objects of her being are distinct from the (perhaps) more important object, the reproduction of the species. So soon as the organs subservient to the latter are developed, the peculiarly feminine qualities above-mentioned acquire a remarkable exaltation, as indicated by the secrecy and dissimulation practised by women in the performance of certain offices of life, and which, in her, are both required and excused.

When the generative organs of the female are in the full performance of their functions, this artfulness is still more exalted, and in brutes practised so as to rival the highest attempts of human sagacity. The skill they display in the choice of a secret place in which to deposit their eggs or young, and the finesse with which they protect the latter from discovery and injury, must be well known to the student of natural history. Even the most ferocious female animal does not disdain to practise the most consummate cunning. The lioness, when she fears to have her retreat discovered, will hide her foot-traces by retracing the ground, or by brushing them out with her tail.

The perversion of some of these peculiarities of the female, form the most prominent physiological phenomena of hysteria and puerperal mania.

Extreme timidity is usually the consequence of a fright. (Case 64.) *Sudden impulses to do a bodily injury*, a symptom of hysteria, is perhaps the converse. The strangest perversion of all is that which impels a mother to destroy her infant,—a state of mental alienation which occasionally attacks brutes. Sows will destroy their own offspring; and I have seen a cat eat her kittens.

Hysterical imposition is a symptom which has caused the greatest speculation and astonishment. Of all animals, an artful woman is the most artful, and when we consider how this faculty may be exalted by the influence of the generative organs, there is not much real ground for surprise at the grotesque forms which it sometimes assumes in the hysterical female.

Whatever may be the cause of this propensity to deceive, it is as certainly a symptom of hysteria as any corporeal symptom whatever. It is as true a monomania as the infanticidal, and is most likely to occur in the female who is hysterical from excess of sexual development; one, possessing the utmost modesty of deportment and grace of figure and movement;—for the modesty itself springs out of the feminine timidity to which I have alluded.

The strange deceptions practised during this state of the mind, by the most respectable and amiable females, have thrown a doubt over their statements, and induced the observer to conclude, that all their symptoms were feigned, and this the more readily, because the deceptions attempted have had a reference in general to those organs, the functions of which were deranged. But this is precisely analogous to what takes place in insanity; the illusions of the insane being, according to Esquirol,* connected with some special function or organic lesion, just as the hysterical maniac, feeling the dyspnœa from laryngeal spasm, asserts a demon is strangling her. A hysterical young female has really a marvellously small appetite, and, to increase the wonder, refuses all food whatever by day, and pays secret visits to the pantry by night. She has retention or partial suppression of urine, and so she crams the vagina with stones, and drops them into the chamber-pot, to make people believe she has stone in the bladder. In all other respects she conducts herself with the most unaffected modesty and propriety. Some cases recently recorded of lizards being discharged from the alimentary canal are of this character. A young woman had nausea, profuse flow of saliva, and a sensation which she described as if some living body attempted to rise up her throat, and then fell down into her stomach. An emetic was prescribed, and (as might be expected from her sensations,) the patient vomited a living lizard! † Baglivi states of the hysterical and lascivious females, especially the nuns of his day, that they would simulate tarantism for the pleasure of dancing, and that this practice was called "il carnevalletto delle donne." ‡ There is a curious case recorded in the seventh volume of this Journal. A female in this hospital, under the care of Mr Champney, thrust pins into her mamma. Dr Elliotson had a hysterical female who feigned hemorrhage. § The remarks of Dr Seymour on this subject are the best I have read. ||

This propensity is unfortunate, as it renders the symptomatology of hysteria still more difficult.

We must endeavour to avoid the equally injurious extremes of unlimited faith and absolute incredulity. The imposition itself may be useful in directing our attention to the state of the organ implicated in it, as most probably either its functions or structure will be deranged. We ought also to remember, that the propensity is a part of the disease, and its indulgence will be attempted; perhaps the best way to treat it is quietly to permit the patient to deceive us, and make its gratification subservient to the remedial treatment.

Anorexia, *Bulimia*, *Pica*, and *strange longings*, are cha-

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* In a memoir read at the Institute in October 1832.

† From a German periodical in Med. Chir. Rev. Vol. xxvii. p. 541.

‡ De Tarantismo, cap. vii.

§ Clinical Lectures in London Medical Gazette, Vol. vii, p. 239.

|| Obs. on the Medical Treatment of Insanity, p. 23, 8vo, 1832.

racteristic of the pregnant, chlorotic, and hysterical female, and have their origin from the same common source, but forming perhaps a third or fourth link in the chain of effects. I had collected a few illustrative facts, but they would be quite inconclusive without some discursive explanations. I would merely say that the dislike of animal food is almost pathognomonic. My paper, I fear, is already too long. I must therefore close, at this point, the first part of the analysis, and, should it be received favourably, I propose considering the remaining portions in a future Number.

I have only to add, that I do not consider myself bound to maintain any opinions I have advanced in this paper, if, in prosecuting the analysis, a more extended induction shall prove them erroneous, or involve them in more general principles. All I wish to do is, to arrange and generalize facts, and draw conclusions which may serve as a basis for a more extended synthetical analysis, and lead to a better diagnosis and treatment of these diseases.

There are some obscure diseases of females which might, perhaps, be better understood if observed with a special reference to the plan I have adopted. I have experienced its utility when examining a patient, and have elicited a variety of minute particulars altogether overlooked by the patient herself. Diseases of females, or even of males, named after some principal symptom, originating in the pharynx or larynx, are of this class, as hydrophobia, hooping-cough, bronchitis, and analogous affections, really hysterical. The idiopathic wry-neck *(torticollis)* affects young females, I believe, almost exclusively. I am sorry I have lost one or two opportunities of investigating its nature, but I suspect it to be of the same character as hysterical trismus, and that it ought to be classed with the local hysterical affections of Sir B. Brodie. Numerous analogous diseases might be mentioned as worthy of the method of investigation to which I have alluded.

We might also be led to know, why one structure is affected rather than another; the left rather than the right: the thyroid body, rather than the mammæ; the larynx rather than the fauces; and so on with the other organs connected directly or indirectly with the ovaries.

Art. IV.—*An Account of three Fatal Cases of Puerperal Fever, and of the Morbid Appearances found upon Dissection.* By John Renton, M. B. A. Surgeon, Penicuik.

The three cases, which form the subject of the present communication, seem deserving of notice, as affording well-marked examples of epidemic puerperal fever, in its most malignant form. The type of the disease is unequivocally proved by conclusive evidence, derived from the symptoms developed in its different stages, and from the appearances found after death. Evidence from both these sources is the more necessary, when we reflect, how many doctrinal controversies, regarding the peculiar character of this disease, have been occasioned by the want of its combination. Although such partial and special opinions, as whether "the fever produces the inflammation, or the inflammation produces the fever," might at first have been adopted, I scarcely think they would have been so pertinaciously-maintained, if the symptoms had been viewed more collectively, and less individually,—if the different species of the epidemic had been more carefully considered—and both these taken afterwards, in connection with the structural changes discovered by dissection. Had this mode of investigation been observed, pathognomonic distinctions in every case would have been less eagerly sought after. A more liberal and less isolated method of inquiry would have been instituted. A diagnosis would have been established on more certain grounds, and practitioners would have avoided the errors of those observers, who have reported remarkable instances of, and reputed recoveries from this disease, the existence and reality of which seem to rest upon no better foundation, than on their own erroneous and limited observations.

Case I.—S. M. aged 24, unmarried, was delivered of her first child, on the morning of the 19th Feburary 1838. The labour was not unusually severe, but the placenta was found adhering firmly, throughout the greater part of its extent to the *fundus uteri*, and was accordingly extracted in the ordinary way, about an hour after the birth of the child. The operation appeared to have been followed by great pain, and immediately afterwards she fell into a state of alarming syncope, which continued for some time. She was still in this condition when I arrived, about an hour and a half after delivery. Upon examination, I found the uterus somewhat relaxed, the extremities cold, and the pulse weak. There had been only slight hemorrhage. She had taken a dose of laudanum and brandy; warmth had been applied to the feet, and cold to the lower part of the abdomen. Under the use of these means, and the employment of friction over the uterine region, she gradually recovered from the state of syncope into which she had fallen.

The case not being under my charge, I did not see her again until the afternoon of Tuesday the 27th, when I was summoned to a consultation, and found her labouring under all the symptoms of peritoneal inflammation in its advanced stage. The abdomen was much distended, and acutely painful; the breathing was very hurried, and entirely performed by the muscles of the thorax; the features were contracted and anxious; and the pulse was 140, small and weak. She had some cough with slight expectoration. She complained much of pain in the back and left side. The tongue was moist and slightly furred. There were no symptoms indicating disease in the head. I learned, that no means had been employed to subdue the abdominal affection; but a blister had been applied to the chest. The case was evidently hopeless, and therefore fomentations were only ordered to the abdomen. These had the effect of relieving the pain in some measure; but she rapidly sunk, and died on Wednesday the 28th at 10 P. M., retaining her senses to the last.

The subject of this case was a particularly strong and healthy woman, and of the sanguineous temperament. The child was still-born, but she never expressed any regret for its loss. Previous to her delivery she had suffered much mental anxiety, from causes which it is unnecessary to mention. Throughout her illness she lay almost constantly upon her back; and during the last twenty-four hours, the whole face was deadly pale, excepting a circumscribed and very vivid flush, which occasionally appeared on the cheeks. The lochia continued natural, and there never was any secretion of milk.

Sectio cadaveris, 38 hours after death. The abdomen was found considerably tumefied, and, upon being opened, presented the following appearances. The intestines were much distended by flatus. The omentum was adhering on both sides to the peritoneal covering of the pelvis, and its whole surface was covered with a layer of recently effused lymph. The convolutions of the intestines were matted together by the same substance; and their peritoneal surface marked by inflamed patches, with corresponding stripes on the membrane covering the abdominal muscles. The uterus was united to the right side of the pelvis by recent adhesions; its appendages were healthy; but the *cervix* and *os uteri* were black, and apparently gangrenous; the surface to which the placenta adhered was not inflamed. About two pounds of lymphy serum were found in the cavities of the abdomen and pelvis.

Thorax.—The anterior edge of the right lung was emphysematous, and there were extensive old adhesions on the same side. The left lung was perfectly healthy. Little serum was found in either cavity. The bronchial tubes had no marks of disease.

The pericardium was found firmly adherent to the whole surface of the heart; the valves and lining membrane of the latter organ were in a natural state.

The alarming syncope into which this patient fell soon after delivery, and for which my attendance was requested, possibly proceeded from the morbid adhesion of the pericardium. I am the more induced at present to take notice of the particular state of the pericardium, and of the syncope, that I have been sometimes in no small degree alarmed at, and much puzzled to account for the occurrence of such a symptom after labours, where there neither had been constitutional tendency to fainting, hemorrhage, rupture of the uterus, nor much suffering from rigidity of the external parts. Two ladies, whom I have occasion to attend, always fall into, and remain for an hour or two, in this distressing state, immediately after every delivery. In such cases, where there does not exist any marked or apparent cause, analogy would lead us to suspect organic disease of the heart.

Case II.—Agnes Russell, aged 23, married, of a spare habit of body, and of the nervous temperament, was delivered of her second child on the evening of Monday the 12th March 1838. She enjoyed a good state of health during pregnancy, having daily attended to her usual employment, until the Saturday preceding her delivery. To my colleague, Dr Madden, who paid the most anxious and unremitting attention to this case, I am indebted for the following history of the symptoms and treatment, and of the appearances found upon dissection.

The labour was in every respect natural and remarkably easy. On the 3d day, (March the 15th) she was seized with slight shivering, headach, cough, and tenderness of the lower part of the abdomen. Having suffered from an inflammatory affection two years before, after her first confinement, notice was immediately given. Blood was taken from the arm, fomentations were applied to the belly, and a saline mixture, containing Epsom salts and tartrate of antimony, was ordered to be taken frequently. The pulse was 130, and of tolerable strength. I visited her about three hours afterwards, and, finding the symptoms not much abated, opened another vein. The blood drawn was not at all buffed on either occasion. She appeared to stand the loss well, but little or no effect was produced on the pulse. In the evening the symptoms appeared somewhat abated, and there having been considerable purging, an opiate enema was administered.

On my visit next morning I found no improvement; she had slept at intervals during the night, but had frequently been awakened by attacks of hysteria, and was much troubled with flatulence, from both of which affections she obtained relief by the ammoniated tincture of valerian, and the use of a terebinthinate and assafœtida injection. Soon after this, the pain, which at first was confined to the pubic region, almost entirely left her, but she was subsequently seized with acute pain in the epigastrium. To this region leeches were immediately applied, and fomentations, poultices, and terebinthinate applications were afterwards assiduously employed. All these means were, however, of no avail. The pulse increased in frequency, while it diminished in strength; low muttering delirium came on and became constant; and, notwithstanding the liberal and frequent use of stimuli, she gradually sunk, and died on the evening of Monday the 19th, the fourth day of the disease. She had throughout considerable sickness, but no vomiting. The cough was very troublesome, the urine extremely turbid, and the hysterical paroxysms frequent, and very distressing. The lochial discharge was at first entirely suppressed, but it returned within twenty-four hours of death. There was no secretion of milk, and she made no inquiries after her infant. During the whole course of the disease, her position was almost entirely confined to lying on the back.

Inspection 38 hours after death.—Indications of putrefaction had made considerable progress on the upper part of the chest and neck. The abdomen was much tumefied. On opening the cavity of the peritoneum some fœtid gas escaped. The large and small intestines were greatly distended, and more or less covered with lymph, particularly in the pubic region, where they adhered to the *fundus uteri*. The omentum was vascular, and completely coated with lymph. The ovaries were healthy; but the Fallopian tubes, especially their fimbriated extremities, much congested. The uterus was of the natural size; some vascularity of its peritoneal covering; the *os uteri* was congested; its substance and lining membrane were perfectly healthy. There was little fluid either in the abdomen or pelvis, that little being turbid, and of a dark brownish red colour. The internal surface of the stomach and intestines was quite natural, and the contents of the thorax were healthy throughout.

Case III.—Mrs P., aged 35, of sanguine temperament, robust constitution, and very healthy, was delivered of her first child at 11 P. M. on March 16th 1838. The labour was rather severe, from rigidity of the external parts, but accomplished within twelve hours, the pains having commenced about noon of the same day, after she returned from a walk of some distance. On the 18th she was affected with headach, but without shivering or tenderness of abdomen; the pulse was 140. A brisk purgative was ordered in the morning, and an opiate at bed-time. On the 19th, she felt better in every respect. But the pulse was still very frequent; the lochia were plentiful, and many clots were discharged through the night, accompanied with much pain in the back. On the 20th, the tickling cough had been troublesome during the night; and for the first time she complained of pain when coughing, in the lower part of the abdomen, which was ordered to be fomented. A dose of castor oil was given. The pulse was still quick, and the lochia natural.

Early in the morning of the 21st I was requested to see her, and learnt that the previous night severe pain in the pubic region came on, without rigors or headach. The breathing was difficult, and cough troublesome; considerable tumefaction and hardness at the lower part of the abdomen had taken place; there was no secretion of milk; the skin was sallow, and the countenance anxious. In consequence of the small size of the veins, not more than fourteen ounces of blood could be obtained. The blood was very strongly buffed. Two dozen leeches were applied to the abdomen, and three grains of solid opium were administered.

At noon she felt easier. The pulse was equally frequent, but smaller; lochia still present; and she was drowsy from the opiate.

At 3 P. M., when the pulse was 150 and small, she complained not much; the abdomen still very tender upon pressure; the skin warm and moist; and the tongue white. The lochia were as before; the bowels had been opened; but no urine had been passed since last night, when it was done with difficulty and pain. She had some incoherence; she never inquired after her child; and she lies much on the back.

At 9 P. M. she had slept much, and when roused was quite sensible, and made no complaint. The pulse was 160, small and weak. The swelling of the belly had subsided, and the heat was diminished; there was no cough, and the respiration was performed more easily. A circumscribed brownish red spot occupied each cheek; and she had passed no urine. A draught of spirit of nitrous ether and aromatic hartshorn was given.

On the 22d, at 10 A. M., the draught had been rejected by vomiting; but she passed a good night, and voided small quantities of urine, which was brown and muddy; the tenderness of abdomen was abated; but the pulse was very frequent, small and weak; upper lip retracted, and the teeth have the shining appearance, the glossy whiteness observed in typhus. Draught to be repeated, and turpentine added to the poultices; eight grains of calomel were given. At 5 P. M. no improvement; much vomiting of yellow adhesive mucus; lochia still copious; no stool, but has passed some brown urine. Sulphate of magnesia in small doses was ordered, until the bowels were moved. 9 P. M. no stool; saline draught omitted after the fifth dose, on account of pains in the epigastrium. Turpentine enemeta were ordered to be administered; a morphia draught was given at bed-time, and wine to be taken during the night.

On the 23d, at eight A. M. she was much worse; the breathing was very hurried; the pulse imperceptible; the extremities growing cold; and she died at 10 A. M., sensible to the last.

Inspection 30 hours after death. The abdomen was much tumefied; the cavity of the peritoneum contained a quantity of very fœtid gas, with which the intestines were also greatly distended; the omentum was small, and loaded with fat; the colon very tortuous and much displaced; the peritoneal surface generally presented but few appearances of inflammation, either in increased vascularity, or the effusion of lymph, excepting in the region of the uterus, where a considerable quantity of lymphy serum was collected; the cavity of the abdomen contained upwards of a pound and a half of that peculiar coffee-coloured fluid, which has been described as characteristic of the most malignant form of puerperal fever. The urinary bladder and appendages of the uterus were perfectly healthy, and the substance of the latter organ presented no morbid appearances, excepting on the right side of the *cervix*, the veins of which part contained a small quantity of purulent matter. There were no other marks of *phlebitis*; the great veins in the neighbourhood were examined, and found perfectly free from disease.

In all the cases, bloody discharge from the mouth and nostrils very soon took place after death, but no appearance of this kind was observed to proceed from the vagina.

The period of attack, the progression of the symptoms, and the morbid appearances, indisputably mark the character of puerperal fever in all these cases. The pulse was uniformly quick, being seldom below 130 from the commencement, never declining with the remission of pain, and increasing in frequency and feebleness towards the end. In one of the cases, the rapidity for a considerable time preceded the attack of pain in the supra-pubal region. Flaccidity of the mammæ, with total suppression of the lacteal secretion, continued frequency of the pulse, and the collapsed state of what Cullen denominates the sensorial power, exemplified in the want of all intellectual exertion, in the absence of affection towards, or anxiety about the offspring, and in the marked abstraction of the mind from every domestic concern, connected with the attack of pain in the pubic region on the third or fourth day after delivery, with consequent abdominal tumefaction, —constituted the most prominent diagnostic signs. Among these the varying state of the uterine discharge is not to be numbered; neither is the uterine pain, when taken alone, and unconnected with the other symptoms, as that frequently subsided and shifted, without the progress of the disease being in the slightest degree retarded. The subacid odour, peculiar to lying-in women, was wanting; but there was a very disagreeable fœtor. This, there is reason to suppose, depended more upon diseased exhalation, than on the discharge from the uterus, as the lining membrane of that organ was not in a morbid state, and the nauseous smell could not be traced to any one distinct infected part, but seemed equally diffused over the whole surface of the body. No floccitation was observed, and in only one case was there *subsultus tendinum*.

Without the least intention to draw any inference from the circumstance, it would be improper to omit mentioning, that, in the house adjoining to the one in which Russell was confined, and between the inmates of which there was daily intercourse, two children had been affected with, and at the period of her delivery, were recovering from, a very severe attack of erysipelas. This disease, although not epidemic, was also of much more frequent occurrence in the neighbourhood than in ordinary seasons. A similarity has been attempted to be established between puerperal fever and erysipelas. Might not an argument be adduced in opposition to the opinion, which has been entertained of their identity, on the ground, that the uterus does not seem to be in all cases the point or centre, in which the inflammation begins and extends to the neighbouring parts? In the first case, by reasoning from analogy, we would have expected to find that portion of the uterus, to which the placenta was adherent, strongly marked by traces of inflammatory action; in the same way as we know that wounds and local injuries are the places which are particularly attacked by this disease. When we find the uterus not only in such a case, but in other cases, least distinctly involved of all the organs which undergo structural lesion by puerperal fever, might not the same objection be urged against the validity of Dr Lee's hypothesis,* when he maintains, that "it is to the uterus left in a condition after delivery, in which no other organ can be similarly placed, and rendering it peculiarly liable to attacks of inflammation, that we are to look for an explanation of all the phenomena of puerperal fever?" Vide Dr Lee's Researches, p. 4, 1833. At the same time, it must be acknowledged, that the rapid extension of the inflammation from the parts originally affected, the subsidence of pain in these situations, and its great severity in the newly attacked localities, bear no small resemblance to the progressive advancement of the phenomena of external erysipelas.

The diseases which prevailed epidemically during winter and spring were typhus and scarlet fever. I cannot adduce a better proof of the malignity of the latter disease, than by stating the fact, of its proving fatal to eighteen children in a small adjacent village. The disease was strongly typhoid. In the primary stage, there was little eruption; and in the fatal cases, death took place on the third or fourth day of the attack, from tumefaction and sloughing of the internal fauces.

In my opinion, these cases exhibit puerperal fever in a form entirely beyond the reach of art. The progress of the disease in case 1*st*, which underwent no treatment, was very similar to that in case 2d, where the most active measures were early had recourse to; yet in both, the same morbid appearances were found after death. Case 3d presented this anomaly, that its leading symptoms bore the strongest resemblance to those of the two other cases, while the structural changes were of a very different character.

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* Dr Denman and Dr Burns, (vide page 471 of Denman's Introduction, &c. and 548 of Burns's Principles of Midwifery,) regard the inflammation which occurs in puerperal fever and common uterine inflammation as different affections.

The former observes, "that inflammation of the uterus is far less dangerous, than an equal degree of inflammation of any of the viscera of the abdomen, *especially in the state of childbed*; because the uterus readily admits of a return of the lochial discharge, which always affords relief, and sometimes cures the disease." And the latter remarks, "if the inflammation do not extend along the peritonæum, this disease (Hysteritis) is more easily cured than other visceral inflammations in the puerperal state." Dr Gooch's opinion is to the same effect. He says, "inflammation of the uterus may exist in different degrees, and it is often combined with peritonitis; *but when a simple disease*, in general it yields readily to active remedies." Vid Compendium, page 289.

There was this additional anomaly between the symptoms and morbid appearances of these cases, that the individuals of case 1st and 3d were much of the same robust constitution, in whom, as there existed a similar tendency to attacks of acute inflammation, a similarity in the products of that diseased action might naturally have been expected to be found.

The history of the following case (a second labour), which occurred in the end of last autumn in the immediate neighbourhood of this village, is not uninstructive as indicating the sporadic existence of puerperal fever. The first delivery had been effected by the perforator, after three days severe suffering. I was informed by the medical friend who sent for me on this occasion, that he understood she had been confined to bed for nearly half a-year from the injuries she received during parturition. Upon examination, I found large cicatrices in the vagina,—the effect of sloughing from the wounds, occasioned either by the incautious use of the instruments; or by long compression of the soft parts by the child's head, from their neglected application, or from both causes. The difficulty of the labour arose from slight narrowness of the brim, and contraction of the outlet of the pelvis, from enlargement of the tuberosities of the ischium, and approximation of the *rami pubis.* I delivered her, with forceps, of a small child, within the hour. Until the fourth day her recovery went on well, when she was seized with the usual symptoms of puerperal fever, and underwent the ordinary antiphlogistic treatment. I did not see her again (the case not being under my care) until the day before her death, which happened on the 9th of the disease, and 13th after delivery. She had a very typhoid appearance; the countenance was anxious and sallow, the pulse almost imperceptibly small, the abdomen not painful, but exceedingly enlarged, and tympanitic, and the teeth and lips invested with a dark-coloured fuliginous coating. The lochia had been natural, but there never had been the slightest appearance of the lactary secretion.

How is the fact to be explained, that during the interval, embracing a period of three days, (the same circumstance occurred also in the other three cases.) between delivery, and the apparent accession of the disease, as indicated by the attack of pain, the mammary glands should continue in this unnatural torpid condition?

Inspection of the body after death was not permitted.

I may mention that two cases in the village, one after a first and the other after a second labour, occurred to me in January last, which some might be disposed to class under the name of puerperal fever. In both, the attack commenced on the third day after delivery, with rigor, very violent pain in the uterine region, aggravated by pressure, headach, furred tongue, quick pulse, and slight meteorismus. The symptoms yielded to the combined effects of blood-letting, fomentations, antimonials, ipecacuan, calomel, and opiates; but the patients, although healthy strong women, did not recover their usual strength for two or three weeks. The secretion of milk was never much affected in either case. This circumstance appears in striking contrast with the total suppression of it in all the fatal cases which I have seen. I am the more induced to notice this difference, because both of the children, while they suckled, were supported by attendants, the mothers being unable, from pain and weakness, to hold them at the breast. The state of the lacteal secretion appears from this to be in some degree connected with, or indicative of, the malignant form of the disease.

With the exception of two sporadic attacks of the disease,—one of which occurred nearly twenty and the other about three years ago, after first and easy labours, the foregoing cases comprise all that I have seen of puerperal fever. The subjects of the cases I refer to were healthy young women, of florid complexions. One of them was seized, in addition to the usual symptoms, from the beginning, with violent bilious vomiting and purging, and was carried off on the fourth day from the attack. In the other, the disease was very similar in its progress and termination to the case which I have described, of the woman who died on the thirteenth day after delivery. One of these women was naturally fond of children, and the relations of both, who were in attendance, were greatly struck at their apathy towards their infants, neither of whom were ever applied to the breast, in consequence of the entire want of milk.

If these were not genuine cases of puerperal fever, I am at a loss by what designation to term them. They were different in every respect from attacks of simple peritonitis and of hysteritis, affections which have not been of unfrequent occurrence to me. The experience of my neighbour practitioners regarding the sporadic character of puerperal fever, (for the disease has never appeared epidemically in any district, to which my practice extends,) is in exact conformity with what I have stated. They consider it of so untractable a nature, that interference only aggravates the symptoms. All these cases, it is worthy of notice, occurred after first and second labours.

It appears to me, that the views taken of puerperal fever have always been too much influenced by the consideration of particular symptoms. It has been alleged, in consequence of violent uterine contractions occasionally ushering in the disease, that the muscular substance of the uterus is chiefly affected. This does not seem to me to afford any better proof of that part being the principal seat of the disease, than that the different painful spasmodic affections which occur in cholera indicate the seat of that epidemic. A concomitant is not a necessary symptom. Neither should our inquiries be directed to the solution of such questions, as whether the morbid alterations in structure found after death in the peritoneum, omentum, and other abdominal viscera, be the cause of all the phenomena; or whether the local and constitutional symptoms are the consequences of a specific fever? How far these are connected with, or dependent upon each other, would form a more useful and instructive subject of investigation.

The affection of the throat, for example, is a symptom of scarlet fever. But no one inquires whether the fever causes the sore throat, or the sore throat the fever. The form which the sore throat assumes, whether inflammatory or putrid, only denotes the type of the fever. In like manner, the inflammation which occurs in puerperal fever is merely the morbid action, which gives the character to the disease; and as that inflammation is not of the ordinary kind, as its products clearly demonstrate, we have every reason to infer, that the inflammation and accompanying fever are analogous, and both of a specific kind.

In the report on the puerperal fever in Vienna, (vide Edin. Med. and Surg. Journal, 1824, page 89,) Baron Von Matoschek observes, " It may easily be conceived that in pregnant women, who are badly nourished, undergo hard labour, vexation and care; and live not unfrequently in low, damp, close dwellings, under the influence of excessive heat and continued moisture, such as occurred this summer, a gastric and scorbutic diathesis may be developed; nor is it less conceivable, that, if inflammation occur in such a diathesis, it must have the greatest tendency to gangrenous disorganizations, particularly if scarlet fever and erysipelatous eruptions prevail, as this summer evinced."

The Editor of the Journal referred to very justly remarks, " that the mode of life had no concern in the evolution of this disease, was put beyond a doubt by our unfortunate experience in this city, where it spared neither high nor low, rich nor poor, those delivered in hospital, in the city, nor in the environs, neither the gay and dissipated, nor the most retired and domestic."

Our researches into this disease must not be confined solely to the effects produced on the constitution by the act of parturition, or to the condition in which the uterus is left after delivery. They must be extended to *the state antecedent to delivery*, in which most important changes take place in the female economy;

I refer to the changes produced by pregnancy, particularly on the nervous and circulating systems.* I do not pretend to say, how far these either may predispose to attacks of disease, or may modify their type; but an inquiry into all the causes of the constitutional disturbances observed in puerperal fever must necessarily be imperfect, if those important changes, to which I have alluded, and which have hitherto been too much overlooked, be not taken into account.

P. S.—Two months have elapsed since the death of Mrs P., and no other case of puerperal fever has occurred in this neighbourhood, until the 16th of the present month (May). During the interval, Dr Madden and I have attended a considerable number of lying-in women, all of whom made good recoveries. This circumstance seems to indicate in some measure the non-contagious nature of the epidemic, at least in so far as the transference of the infection depends upon the medium of a third person. The only peculiarity in the present case consisted in the seat of the pain, which was primarily confined to the region of the coccyx. The back has often been described as the part first attacked; but I am not aware that the disease has ever been represented as seizing on the lowest part of the sacrum and coccyx. The poor woman lived in the immediate locality where the other cases occurred; and it is deserving of notice, as showing that a particular state of the atmosphere seems favourable to the production and continuance of the disease, that all the cases appeared when the weather was cold and changeable, the range of the thermometer varying, in the course of the twenty-four hours, from 12 degrees below, to as many degrees above, the freezing point. The disease commenced in February, went off with the thaw which set in in March, and reappeared on the 19th of this month, when the frost was equally severe for several nights as in winter.

Mrs L., aged 30, a very healthy person, was delivered of her third child, after a very easy labour, on Wednesday the 16th May, at 8 A. M., and died on the Tuesday following, the 22d, at 10 A. M. The disease commenced on the evening of the 17th. Although it was very insidious in its attack and progress, there being apparently few symptoms indicating immediate danger, yet to those who have witnessed malignant cases, the early symptoms, with the exception of the pain I have described in the coccyx, and which continued for nearly two days, were sufficiently characteristic. These were, diarrhœa, (the stools were neither fœtid nor frothy,) short dry cough, small quick pulse, suppression of lacteal secretion, retention of urine, hysterical paroxysms, irregularity of the lochia, which appeared and disappeared for twelve hours at different periods; anxious countenance, with frequent flushings of the cheek, and peculiar paleness round the mouth, and dry whiteness of the teeth, marked unconcern about every thing, recumbency on the back, and quick breathing, &c. the respiration being 32 in the minute. From the commencement I felt, as in all the other cases, increased heat, with sweating in the supra-pubal region; but there was not much pain, even upon considerable pressure. Before the peritoneal affection supervened on the third day, there was only a circumscribed, soft, puffy, and compressible swelling around the umbilicus. There was little or no *tympanitis* until the last stage, when great distension of the abdomen took place, its parietes being as much swelled as before delivery. Within the last four hours vomiting took place, seemingly occasioned more by the operation of the medicines, and loss of tone of the stomach, as Dr Burns has remarked, than proceeding from morbid structure. During the last day sinking rapidly took place, the complaint proving fatal rather from exhaustion than inflammatory action.

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* "We have indeed been told," says Dr Denman, "that, in the dissections of some who are said to have died of this disease, no appearances of inflammation have been discovered; but I should suspect that in such cases some important appearances have been overlooked, or that errors had been committed as to the nature of the disease, and probably in its treatment; unless the patient might be supposed to have died merely from excessive irritation."

"The inflammatory appearance, so often observed in the blood of pregnant women, may perhaps be justly esteemed a mark of a state particularly disposed to fever." Vide Denman's Introduction, &c. 7th edition, pages 472 and 488.

The symptoms never being sufficiently urgent to warrant general blood-letting, the treatment was confined to leeching, fomentations, enemata, calomel and opium.

Penicuik, *26th May* 1838.

Art. V. *Ophthalmic Cases, with a Case of Chimney-Sweepers' Cancer cured by Excision.* By J. Moore Neligan, M. D. Clonmel, Ireland.

Case I. Mary Brough, aged 56, was admitted into the House of Industry Hospital, Clonmel, June 5, 1837. She states, that two years since, in the act of stooping, she struck her right eye against a projecting piece of timber. At that time the eye became much inflamed, and she was confined to bed for nearly six months, since which time she has never completely recovered the use of that eye. In the month of April last, after exposure to cold and wet, she was attacked with severe inflammation of the entire orbit. She has had no medical attendance, but has kept a poultice constantly applied to it since.

There is at present great œdema of both eyelids; the eye is generally inflamed; the cornea presents a large ulcer with ragged edges; and there is in the anterior chamber a copious effusion of albumen, which, however, does not seem to be organized. (The appearance of the eye is faithfully represented in the drawing marked No. 1.)

On admission the ulcer was touched with nitrate of silver, and lint dipped in Goulard's lotion ordered to be kept to the eye; also five grains of the compound calomel pill to be taken night and morning.

On the 8th of June inflammation was much reduced, and the œdema had completely subsided.

Instead of Goulard's lotion, the following collyrium, consisting of two grains of corrosive sublimate (bichloride of mercury) in eight ounces of distilled water, was ordered.

On the 12th of June the ulcer of the cornea was looking clean, and the edges well defined. One drop of the solution of nitrate of silver was directed to be dropped into the eye three times daily; and the pills were ordered to be continued.

On the 17th of June the albumen was nearly all absorbed, some haziness still continuing. She says that she can see better than she has done for the last two years, and does not feel the least pain in either her head or eye.

The use of the remedies was continued.

On the 19th of June, the appearance of the eye was that presented by the drawing, No. 2. The sight continued to improve, and ulcer was filling up rapidly.

The pills and collyrium of the bichloride of mercury were omitted. The drops were ordered to be continued.

From this date until the 8th of July, when she was discharged from hospital, the eye improved daily. At the time of her dismissal the ulcer had completely healed, and there was no trace of the disease remaining, except a small cicatrix on the cornea, which interfered but slightly with vision.

Case II. Winifred Daniel, aged 77, was admitted into the House of Industry Hospital, Clonmel, 15th June 1837. About ten days ago, having been exposed to heavy rain, inflammation attacked the left eye, since which time she has suffered much from constant pain in the head and orbit. There is, at present, general inflammation of the conjunctiva and sclerotic coat, with some opacity of the cornea, in the very centre of which there is a small ulcer. She was ordered the drops of the solution of nitrate of silver and the collyrium of the bichloride of mercury.

17th of June. To-day she complains of more pain in the head, although the inflammation is somewhat diminished. Six leeches were applied to the left temple, and a cathartic draught was ordered to be taken immediately.

On the 19th of June pain in the head was much relieved by the leeches, but there is still a great deal of inflammation of the sclerotic coat, the ulcer on the cornea looks more healthy, and is much smaller. *Habeat pil. domesticas cathart. duas, et continuantur collyria.*

On the 23d of June the ulcer on the cornea was quite healed, but great opacity remained, so as completely to impede vision, and she complained of dull pain in the orbit. She was ordered five grains of the compound calomel pill, night and morning, and the extract of belladonna to be rubbed around the eye.

23d July. The same treatment has been continued up to this date, when she was dismissed, a slight haziness of the cornea still remaining, which, however, did not materially impede vision.

Case of Chimney-Sweepers' Cancer, with operation.

Peter Connors, by trade a chimney-sweep, aged 78, was admitted into the House of Industry Hospital, February 20th 1837. He states that he has followed his occupation as a sweep since he was five years of age, and that he always enjoyed the best health, until within the last six years, when he met with a violent strain, which produced inguinal hernia on the right side. Two years after this accident, when returning the contents of the sac into the abdomen, he used at times to experience severe pain darting through the testicle. About three years since, there appeared on the scrotum a small sore, which increased but slowly, and was not attended with much pain until about four months since, when it rapidly increased in size, and became extremely painful, which he attributes to sleeping on a heap of soot, having had no bed.

On examination, I found an ulcer of nearly three inches in diameter, with hard raised edges, and an irregular surface, discharging much sanious purulent matter, which emits a strong ammoniacal odour He complains of violent lancinating pain, which is particularly severe at night. A ligamentous attachment can be felt between the scrotum and the *tunica vaginalis* of the right testis. The inguinal glands are not affected, and he is a remarkably stout able man.

22d of February. Operation.—On cutting through the *tunica vaginalis*, I found the testicle quite sound, (there being a slight hydrocele,) so that I determined to leave it undisturbed. There was considerable venous hemorrhage from many minute vessels, which continued for four hours after the operation.

25th of February. To-day I removed the sutures, there being much tension, and a good deal of coagulated blood in the scrotum. Ordered antimonial cathartic mixtures, so as to affect the bowels.

1st of May. He has had no untoward symptom since, and was discharged cured to-day.

Up to the date of this communication, he has had no return of the disease, which seems to have been completely eradicated.

Clonmel, October 27, 1837.

Explanation of Plate I.

Figure I. View of the appearances in the eye of Mary Brough, Case I., on the 5th of June 1837.

Figure 2. View of the appearances in the eye of Mary Brough on the 19th of June, after the albuminous deposition was absorbed.

Art. VI.—*Some Observations on Plague, Contagion, Elephantiasis, and other disorders prevalent among the population of Alexandria.* By Thomas Leslie Gregson, Esq. Surgeon-in-Chief of the Marine Hospital at Alexandria. In a Letter to Dr Winterbottom.

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As far as my own experience, which has not been small, goes, I doubt very much whether plague be contagious. In particular circumstances, such as want of ventilation, numbers being placed together, &c. I doubt not of its being infectious, and acting in the same way as typhus, dysentery, cholera, &c. when placed in similar circumstances. So little do the Arabs believe in contagion, that during the great plague two years ago, we destined a number of soldiers to act as attendants on the patients at our hospital of observation. When the disease abated a little we discharged them, and they complained very much—preferring to remain where they were, than to go to their regular service. The grave-diggers are rarely ever attacked, at least not more than others; the servants in the Lazaret in the same proportion. It is, however, equally true, that nineteen attendants employed there and several of our Doctors died in seven months. All our ships of war have repeatedly, at intervals, had cases, yet nothing like contagion or infection ever followed. So common is this, that it causes no apprehension to those aboard; they are put in quarantine for eleven days. Some months ago, a servant belonging to the great hospital of the marine, of which I am Surgeon-in-Chief, was attacked with plague. We were immediately shut up in quarantine. During seven days we had other four attacked; the last was my own infirmary servant, who attended me in my morning visit. I observed him to be unwell, and on examining him found he had symptoms of the plague and a bubo. Notwithstanding his having touched almost all the patientsin my division, and indirectly the patients, &c. of more than 1000 in number, no symptom of plague followed.

The men belonging to the marine amount to 15,000, and those to the arsenal 6000. Constantly engaged in hard service, of course the wounded and ophthalmics are very numerous, which are exclusively treated by me. I am responsible for all the venereal and skin diseases, which are very numerous. Our hospital also receives the cases amongst the inhabitants, as also of the provinces.

To say the truth, we are so much tyrannized over in regard to quarantine, which is governed by a commission of consuls, with two civilian Doctors attached, that we are more afraid of the quarantine than the disease.

Of *framboesia Africana*, or true Yaws, I have seen little. The general complaints here amongst the blacks from Dongola, Darfur, Sennaar, &c. are different forms of marasmus, of which I have seen thousands of cases; as also among the Arabs and Syrians, I have seen marasmatic individuals reduced almost to perfect skeletons, without any manifest organic disease or functional derangement. I have also frequently found tubercular diseases of the lungs, but in many no particular changes were observable. The symptoms of *marasmus* here in a great degree are produced by nostalgia. Carious affections of the bones are exceedingly common amongst the blacks and Abyssinians.

Lepra is also frequently met with. *Lepra Elephantiasis* is common amongst the Arabs.

Elephantiasis of the scrotum is also in some provinces to be met with. I operated lately on a case, in which the tumour weighed 53½ lbs. The penis and testicles were deeply imbedded in the tumour, which reached from the *os pubis* to below the middle of the leg. As the operation adopted by Mr Aston Key in the case of the poor Chinese was unsuccessful, and the cases recorded are not numerous, I shall describe in few words the manner in which I operated, which was as follows.

A square flap, five inches in length, and sufficiently wide to cover the penis, in case its own covering, on being everted, should not be sufficient, was dissected off, and held upon the abdomen. A large circular incision was then carried around the opening on the front of the tumour, where the urine escaped.

An incision of the skin on the left side, in the line of the penis, commencing at Poupart's ligament, and extending down to the circular incision, dissecting deeply, exposed the penis, which was dissected carefully from the pubis downwards to the glans; and the same being done on the right side, the penis, with the skin belonging to the circular incision, was held up on the abdomen.

Then, on the left, commencing at Poupart's ligament, the cord was found, and traced deep into the substance of the tumour, where the testicle was found firmly imbedded and detached, and held up on the abdomen by an assistant. The same procedure was observed on the right side. The cords were about nine inches long.

Two large semicircular shaped flaps were then formed, and dissected back from the lateral and posterior part of the neck on the perineal part of the tumour. The rest of the tumour was then dissected out from the perineum by a few strokes of the knife.

Only a small artery in the perineum was tied in the operation. In the early part of the operation the hemorrhage was excessive from enormous varicose veins. The flaps were then brought into contact by sutures, commencing close to the anus. The testicles and cords were then placed in their new abode, the skin attached to the penis was found inverted, which being drawn back, was attached to the pubal integuments by sutures, was found perfectly to correspond, the under part in like manner to the scrotal integuments.

The whole operation, from the time when the patient was put on the table, till the dressings and every thing were finished and the patient was carried to bed, occupied precisely forty minutes. He got quite well, and the wound was firmly cicatrized on the fiftieth day after operation; and he then left the hospital with the organs of generation in apparent integrity of structure and functions. I have heard from him lately, and he is well and strong in all respects.

The tumour, extirpated by the operation, was composed of interstitial deposition of an adipose substance, with here and there small deposits of water. In some parts the skin was almost cartilaginous.

A month ago I operated on two men for stone. On one I performed our usual lateral operation, and quickly extracted a very large mulberry calculus. There was a tolerably copious venous hemorrhage, which soon stopped. He is now quite well.

As I operated on the other by what is called Vacca's method, although nearly the operation of Marianus modified, as it is at present preferred in Italy and France to the lateral, and as it seems to me to be the simplest, I shall describe it.

I made an incision on the raphé of the perineum, commencing close to the point where the scrotum is attached to the perineum, and extending to about eight lines from the margin of the anus. Then dissecting down to the membranous part of the urethra, and the latter being opened on the staff, a long straight probe-pointed bistoury was slid along the canula, depressing the handle of the staff, the knife glides along dividing the prostate; and as the left forefinger follows the knife, if the prostate is not sufficiently divided, this is done in withdrawing the knife. In introducing the bistoury, the handle should be depressed, keeping its point firmly against the sound; but in enlarging the incision in the prostate, in withdrawing the knife, the point is depressed, and the wrist elevated, so that all chance of wounding the rectum is avoided. Very large stones may be extracted by this operation. It is much simpler, and there is no danger of hemorrhage.

The stone in this case was large and scabrous, and was firmly retained by the bladder,—was of a double-headed figure, with a neck, where it was grasped by the bladder. After some considerable force had been used, the stone was released from its situation, and extracted.

I expected some inflammation, the man being above 45 years. He slept the first night; but he had no unfavourable symptoms, and was perfectly cured, the wound being cicatrized on the fourteenth day.

I am sorry I keep no journal except of very particular cases. Ordinary cases, such as amputations, tumours, abscesses, being daily occurrences, I never nôte.

In ophthalmia, acute or chronic, I find the best application to be a strong solution of thc nitrate of silver, or the same mineral salt applied to the eye in substance. I find the sulphate of copper and ammonia, one drachm to six drachms of water, to be useful in removing specks from the cornea. I have generally about fifty cases of ophthalmia under treatment. In syphilitic affections, I find the deutochloride of mercury given conjointly with sudorifics to be the most efficacious and most manageable agent, and to be certain in its effects.

Plate I. Fig. 3. View of the tumour of the scrotum, ***Elephantiasis scroti***, removed by Mr Leslie Gregson. The orifice of the penis and urethra is seen deeply imbedded in the centre of the tumour.

ART. VII.—*A Case of Inguinal Aneurism, operated on by* SAMUEL HOBBART, M. D., Fellow of the Royal College of Physicians, Edinburgh; Member of the Royal College of Surgeons, London; and Surgeon to the Cork House of Industry and Lunatic Asylum.

ON the 4th of June 1837, I was consulted by John Howard, a tall, athletic man, 42 years of age, of sanguine temperament, and by profession a musician, who came from Youghal, a considerable sea-port town, twenty-five miles from this city. He stated, that, for the last twelve months, he suffered a great deal of inconvenience from a tumour in the left inguinal region, which during that period had been increasing in size. On his first noticing it, it was about the size of a filbert, and did not display pulsation for four months after. Since that time the size had rapidly increased, accompanied by numbness and stiffness of the limb, and considerable œdema of the leg and foot. His general health, however, was not much interfered with, and he continued to follow his usual avocation.

When he requested my advice, the tumour was about the size of a duck's egg, imbedded in the surrounding tissues; its pulsations were quite perceptible to the eye, and when felt, isochronous with the beating of the neighbouring and radial arteries; and in the different positions in which I placed him, they were so distinct and satisfactory, as to leave no doubt on my mind of the true character of the disease. Wishing, however, for a further corroboration of my views, I called on my friend, Dr Bullen, who examined him minutely in my study, and agreed with me in every particular. I then ordered him a purgative, rest in the horizontal posture, and low diet. I subsequently subjected him to the inspection of two or three medical friends, who took the same view of the case.

On the 23d of June, I performed the operation in the presence of more than one hundred resident and country medical practitioners, in the following manner.

I made a semi-elliptical incision of about four inches in length, its convexity and centre an inch and half from the anterior superior spinous process of the ilium, extending two inches above, and the same below this point. I commenced thus high in order that, if necessary, I should be able to tie the primitive iliac without embarrassment, and having cut through the integuments, superficial fascia, and abdominal muscles, from the heat of the day, and crowded state of the apartment, I felt some little delay in separating the *transversalis fascia* from the *peritoneum*, but on dipping my hand in cold water felt much refreshed, and, proceeding with the operation, separated the *peritoneum* cautiously, and passed the ligature round the external iliac artery without much inconvenience, having previously satisfied myself as to its healthy state. The wound was then dressed in the usual manner, and the patient was removed to bed, and strictly enjoined not to move or change his posture.

At my evening visit, as I found him with a hot dry skin, strong full pulse, ranging about 100, and complaining of pain in the wound, with some tenderness in its vicinity, sixteen ounces of blood were taken from his arm with evident and acknowledged benefit, and he got a draught consisting of one-fourth of a grain of acetate of morphia, and two drachms of the acetate of ammonia, in one ounce of water, which procured him quiet and sound sleep. The heat of the limb at the side operated on was 92° at the toes, and 96° on the opposite one.

On the morning of the 24th he appeared considerably relieved, and did not awake until 8 o'clock. The skin felt cool, the wound free from any irritation, the tongue clean, pulse 86 and soft, and his general appearance that of one likely to go on well; his bowels, however, rather confined; the temperature of the limb at the side operated on was 95 at the groin and ham, 88½ at the toes; at the sound side 97 at the groin, ham, and toes. At 8 o'clock P. M. he complained of great uneasiness of the abdomen, which I found tense, but not tender on pressure, and somewhat tympanitic, pulse 86 and full, bowels not moved. He was ordered to have one ounce of castor oil immediately. At 11 o'clock P. M. as the bowels were still confined, the abdomen very tender, and the tongue dry and furred, a purgative enema was directed to be administered immediately.

25th. 9 o'clock A. M., the injection brought off a quantity of flatus and some fæculent matter, which considerably relieved him, and has removed some of the distension; he slept well; his tongue appeared moister. The tumour is evidently flatter and quite free from pulsation; the temperature of the limb at the groin and ham 92°, at the toes 90°.—9 o'clock P. M., has spent the day well; had a slight alvine evacuation; the tongue is moist and clean; the pulse soft and 86; there is slight tenderness on pressure over the lower part of the abdomen. The temperature of the limb at groin, ham, and toes 92°, on the opposite extremity 2 degrees higher, except between the toes, where it is 92° also.

26th. 9 o'clock A. M., slept well last night; the bowels have not since been moved, but the tongue is moist and still cleaning; the abdomen soft and free from tenderness; the pulse 84; and the temperature at groin and ham 94°, at toes 80°; on the sound side, groin, and ham 92°, between the toes 86°. 11 o'clock P. M., as at the morning visit, except that the temperature at the toes and ham is higher than that at the groin, thermometer being steady at 96° in the former positions, 94° in the latter, while 97° marks the temperature in each situation on the right side.

27th. A. M. slept pretty well, and has had one motion; tongue a little more coated; abdomen soft and easy; pulse 82; heat of left limb at groin 94°, ham 96°, toes 86°, of the right, 95°, 94°, and 91°; at the evening visit he continued to go on well and without alteration; has had a solid evacuation.

28th. Continues to improve; has had no movement of the bowels since, but the urine been clear and copious; towards evening has had two scanty compact dejections.

On the 29th, four stools without medicine. The tumour appears evidently diminishing, and the temperature so steady, as to admit the removal of the flannel bandage from the limb; towards night the wound was more painful than usual. Slight numbness in the heel has been removed by gentle friction, and a quarter of a grain of acetate of morphia taken at bed-time.

30th. He slept well last night, and is free from pain to-day; the temperature in each groin and ham 92, between the toes in left 88, in right 91. At my evening visit I removed the dressings and sutures, in consequence of the patient's complaining of shooting pains through the wound, which I found healthy, and united in nearly two-thirds of its extent.

The next day, July 1st, I found him going on well, the wound discharging healthy purulent matter, and every indication of constitutional tranquillity.

2d. Has had a restless night, accompanied by a troublesome cough, to allay which I directed a pectoral mixture to be taken, and he passed the day without pain or inconvenience.

Up to the 5th, his diet was chiefly gruel, whey, toast, and similar articles; but from this day I allowed him some chicken broth daily.

On the 15th he sat up a short time. He was allowed solid animal food, and continued without any apparent inconvenience, other than the retention of the ligature up to the 22d, when it came away after a gentle effort at its removal, the twenty-ninth day after the operation. During the intermediate days not specified, nothing occurred of sufficient importance to publish, each trivial symptom having been combated at its appearance.

ART. VIII.—*A Statistical Inquiry on Fever, being an attempt to ascertain the prevalence, susceptibility, intensity, and prognosis, with some observations on the influence of Medical Treatment.* By ARTHUR SAUNDERS THOMSON, M.D. &c.

IN the year 1832, a society was established in Paris, denominated "The Medical Society of Observation." M. Louis is Perpetual President, and MM. Chomel and Andral are Honorary Presidents. The first volume of the memoirs of this society was published in 1837. M. Louis, who is the author of the first paper, inculcates the importance of statistical investigations. He says the necessity for numerical analysis has always appeared to the members to be so evident, that no discussion has ever taken place on this point. M. Louis thinks that medicine may be advanced and rendered certain, just as chemistry has been, by reckoning every thing. In this essay, M. Louis makes the following observation: To the present time, physicians have never or rarely established the accuracy of their statements by computation. Of what malady is the mean duration known, except in the case of some eruptive disorders, in which it has been very imperfectly observed? Books on pathology, indeed, inform us that age, temperament, and other circumstances exercise a certain influence on the progress and duration of diseases. But the rigorous proof of this assertion, and the exact measure of this influence are nowhere to be found; and how can they be obtained unless in the mode now specified?*

On the continent, the true value of statistical investigations has long been duly estimated. In this country the importance of employing the numerical method in ascertaining the results of disease, and in the investigation of general facts, has of late years been gradually rising into importance. If medical men would give, in a tabular form, an account of the number of cases of disease they have treated, the effect of the remedies employed, the duration of each case or set of cases, and the mortality which occurred, together with the morbid appearances found on dissection, &c. it would contribute much to the progress of the medical art; for, however limited the field of observation of any single individual may be, he will find that although he may not be able to establish any new plan of treatment, he at least may adduce facts which may either tend to confirm or invalidate some particular doctrine, and by so doing he will perform no mean service to his art.

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* De l'Examen des Malades et de la Recherches des Faits Generaux. Par M. Louis, Mem. de la Société Medicale d'Observation. Tome i. p. 33, Paris, 1837.

CLASSIFICATION.

Common continued fever, according to Dr Cullen, is divided into Synocha, Synochus, and Typhus. These three fundamental divisions of continued fever are observed during the course of the same epidemic, and are merely modifications of the same disease arising from peculiar circumstances. The general term fever which I have employed comprehends these three varieties. The object of this paper is to adduce such statistical facts as I have been able to collect regarding the fever which occurs in Great Britain.

On the prevalence of Fever in Great Britain.

The researches of physicians have ascertained that common continued fever is a disease almost never absent from the dwellings of the poorer classes resident in the large cities of the United Kingdom. Willan and Bateman have established this circumstance in regard to London; Ferriar and Percival in Manchester; Haygarth in Chester; Currie in Liverpool; and Cowan in Glasgow; and we have the testimony of all medical men who have written on fever, that it is a disease which constantly prevails among the poorer classes in Ireland.

It is much to be regretted that, from the want of proper registers, no definite idea can be formed of the prevalence of fever and the amount of its mortality in Great Britain. Sydenham calculated that two-thirds of mankind die of acute diseases, properly so called, and two-thirds of the remainder from consumption. Medical men have endeavoured to estimate the prevalence of fever by remarking the number of cases treated in the hospitals. But it must be obvious that this method conveys a most unsatisfactory idea of the prevalence of fever; for in some towns the antipathy of the poor to enter a public hospital is great, whereas in other towns this is not the case. If, for example, an opinion were to be formed regarding the prevalence of disease in London and Paris, from the number of patients treated in the public hospitals, a false conclusion would be drawn. In ordinary times, when there is no register made of the sufferers from any disease, a large proportion of those attacked are unknown. But no sooner are the cases reported than they become to all appearance more frequent. The erection of a new hospital for the insane, the dumb, and the blind, instantly collects a large number of cases, which gives the opinion that these complaints are very prevalent. The foundation of a new hospital does not diminish the number of patients relieved at the original hospital, and it therefore tends to all appearance to augment disease, while in fact it has an opposite effect.

The only method by which we can ascertain the mortality occasioned by any disease, so as to render it comparable with the mortality in other places, is by ascertaining the number of deaths which occur annually out of a certain number of inhabitants. This information can only be obtained by having registrations of the births, deaths, and diseases which occur among the entire population. Since the year 1592, registers have been kept in London of the fatal diseases which occasioned death, and although the means adopted to obtain this information is liable to error, the London bills of mortality are nevertheless calculated to prove useful in ascertaining the laws of disease and mortality. From them I have compiled the following statement.

TABLE No. I. Showing the annual number of deaths in London from fever within the bills of mortality, together with the ratio of deaths per 1000 of the population, which, in 1831, amounted to 1,178,374.

Years.		No. of Deaths by Fever.		Annual ratio of Deaths per 1000.
1831,	-	1224	-	1.4
1832,	-	1156	-	0.9
1833,	-	643	-	0.5
1834,	-	599	-	0.5

This statement shows that fever occasioned in an average of four years, nearly 1 death annually out of every 1000 inhabitants in London. Up to the commencement of the present century, when Dr Stanger published his observations on the Necessity and Means of suppressing Contagious Fever in the Metropolis, and which may be regarded as the commencement of a systematic method for preventing the propagation of the disease, he estimated the annual number attacked by fever in London to exceed 40,000, and the yearly average of deaths from infectious fever within the bills of mortality was known to be at least 3188.* Fever has been gradually decreasing in London since the beginning of the eighteenth century, as may be observed from the following.

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* Remarks on the Necessity and Means of suppressing Contagious Fever in the Metropolis. By C. Stanger, M. D. Gresham Professor of Physic, &c. London, 1802, p. 39.

TABLE No. II.

Annual number of Deaths by fever out of every 1000 inhabitants in London, from the years*

1629 to 1635.	1660 to 1679.	1728 to 1757.	1771 to 1780.	1801 to 1810.	1831 to 1835.
6.3	7.8	7.8	6.2	2.6	1.1

From this table it appears that in 1660 to 1679, the deaths from fever in London were 7.8 annually out of every 1000 inhabitants; and in the space from 1831 to 1835, there was only 1 death annually by fever out of the same number of inhabitants.

In Glasgow, where accurate registers of the fatal diseases have been kept for some years, I find that in 1836 the population was 244,000, and the number of deaths by fever, 841, which is 3.4 deaths out of every 1000 inhabitants.

Dr R. Cowan, one of the physicians to the Glasgow Infirmary, read before the Statistical Society of Glasgow last year (1837), a paper on the "Statistics of Fever and Small-Pox" in that city. The object of that paper is to show the increasing prevalence of fever in Glasgow, compared with several other towns. Dr Cowan assumes that the number of cases of fever admitted into the public hospitals affords a near approximation to the prevalence of that disease.

Dr Cowan states, that Manchester, with a population in 1831 of 227,808, and which is as densely inhabited as Glasgow, the average annual number of fever patients treated in the hospital for seven years ending 1836 was 497. The average annual number of cases admitted into the fever establishments of Glasgow during the same period was 1842.

In Leeds, with a population of 123,393, the average number of fever patients treated in the hospital was 274 annually. In Edinburgh, with a population of 162,156, the number of fever patients admitted annually into the Royal Infirmary was, on an average of the last three years, 756.

The above statements given in Dr Cowan's paper show that the number of fever patients admitted into the Glasgow Infirmary was greater than in any of the towns above-mentioned. But no satisfactory conclusion can be drawn from such data regarding the prevalence of fever in these towns.

The amount of mortality occcasioned by fever in comparison with that produced by all other diseases is relatively small. Thus in London, in 1831, the total number of deaths by all diseases was 25,841, and of these, 1224 were occasioned by fever, which is about one twentieth of the whole mortality. In Glasgow the total deaths by all diseases in 1836 was 8441, and of these 841, or about one-tenth of the whole, were produced by fever.

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* M'Culloch's Statistics of Great Britain, article Vital Statistics.

On the susceptibility of particular periods of life to Fever.

It is important to ascertain the period of life during which there occurs the greatest susceptibility to fever. Inferences have been drawn regarding the prevalence of fever at particular periods of life, from the age of patients admitted into hospitals, as will appear from the subjoined

TABLE III. Showing the ages of fever patients admitted into St John's Fever Hospital, Limerick, from 6th January 1836 to 5th January 1837,* and into the Glasgow Infirmary from October 1835 to November 1836 † combined.

Ages.		No. of Patients admitted.
0	to 5	122
5	10	679
10	15	1080
15	20	1201
20	25	786
25	30	591
30	35	234
35	40	364
40	45	131
45	50	146
50	55	44
55	60	57
60	65	7
65	70	16
	Total,	5458

From the above statement it appears that, of 5458 fever patients admitted into hospital, 2281, or nearly one-half, were between the ages of 10 and 20; or, keeping the same proportion as in the foregoing table, out of 100 fever patients admitted at all ages 55 were under 20 years of age; 37 between 20 and 40; and only 8 above 40 years of age. From the above, we may observe that the period of life most liable to fever is from 10 to 20.

Tables, similar to the preceding, have been adduced to show the age at which the predisposition to fever is strongest, yet it must be obvious that the information such statements afford, regarding the susceptibility of particular periods of life to fever, is very unsatisfactory, for no opinion can be formed concerning the number of persons living at each period of life, so as to estimate the exact proportion which the number living at each age bear to those attacked, as is shown in the following statement.

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* Report of St John's Fever Hospital, Limerick, by W. J. Geary, M. D. Dublin Journal of Medical Science, September 1837.

† Dr Cowan's paper on the Statistics of Fever and Small-Pox in Glasgow.

TABLE IV. Shows the estimated number of the inhabitants in Glasgow at each age during the year 1836; the number attacked by fever, together with the ratio attacked out of every thousand at each decennial period of life.[*]

Ages.	No. of inhabitants at each age.	No. attacked by Fever.	Ratio per 1000 attacked by Fever.
Under 10	67,469	3811	56
10 to 20	50,009	1539	30
20 to 30	46,275	1611	34
30 to 40	32,044	911	28
40 to 50	21,758	392	17
50 to 60	14,090	294	20

The right hand column of the above table may be thus read; out of every thousand inhabitants in Glasgow under ten years of age during the year 1836, 56 were attacked by fever; out of every thousand between 10 and 20 years of age, 30 were attacked with fever, and so on. It appears from this table that the greatest susceptibility to fever occurred under 10 years of age, after which fever occurs most frequently among persons between the age of 20 and 30. The number attacked after the age of 30 decreases gradually as life advances. The period of life at which the greatest mortality occurs from fever is shown in the following table:

TABLE V. Showing the estimated number of the population in Glasgow at different ages, the number of deaths by fever at each age during 1836, together with the ratio of deaths by fever out of every 1000 inhabitants.

Ages.	No. of inhabitants at each age.	No. of deaths by Fever.	Ratio of deaths per 1000 living at each age.
Under 5	36,495	59	1.6
5 to 10	30,974	40	1.2
10 to 20	50,009	96	1.9
20 to 30	46,275	204	4.4
30 to 40	32,044	173	5.4
40 to 50	21,758	154	7.0
50 to 60	14,090	84	5.9
60 to 70	8,360	27	3.2
70 to 80	3,144	4	1.2
80 and upwards,	851		
Total,	244,000	841	3.4

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[*] The number of cases of fever stated in this table is not the result of actual ob-

It appears from this table that the highest ratio of mortality from fever occurs among persons between the ages of 40 and 50. Thus out every 1000 children in Glasgow under 5 years of age, 1½ die annually of fever; from 5 to 10, 1.2; and so on. The ratio of deaths gradually increase as life advances, till between 40 and 50, at which period of life 7 deaths occurred out of every 1000 living.

The foregoing table, on a superficial examination, appears to give a result directly at variance with Tables Nos. III. and IV. Thus Table IV. shows that a large proportion of those attacked by fever are between the ages of 20 and 30, whereas Table No. V. shows that the greatest number of deaths by fever occurred among individuals between 40 and 50. This apparent discrepancy can be easily reconciled, as it shall be shown in another part of this paper that the intensity of fever increases in a direct proportion to the age of the patient. The susceptibility to be attacked by fever decreases as age advances, whereas the intensity of fever and ratio of deaths increase as life advances.

On the comparative susceptibility and mortality of both Sexes to Fever.

Various medical writers state that females are more liable to fever than males. Dr Geary, in his excellent Report of the Limerick Fever Hospital, alleges that females are more liable to fever than males,—a circumstance which he attributes to their greater delicacy of constitution, as well as the disproportionate amount of labour they undergo, and from being scantily clothed.

It may be seen from Table XI. at page 98 of this paper, that the number of male and female patients admitted into several fever hospitals has been separately recorded. The total fever cases admitted is 17,637, of which 9241 are females, and 8396 are males. In this instance the female admissions exceed that of the males by about one-tenth. Before a satisfactory conclusion can be arrived at regarding the greater susceptibility of the female sex to fever, it is necessary to examine whether the greater number of females affected may not be attributed to the fact, that the female population considerably exceeds the males. Thus in the Glasgow Fever Hospital for 1836, 2257 fever patients were admitted, and of these 1132 were females, and 1109 males, which shows that

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servation. I have estimated the number attacked in the following manner. Dr Cowan, in his Statistics of Fever in Glasgow, shows the intensity of fever in the Infirmary during the year 1836; from which statement it appears, that, under 10 years of age, 231 cases of fever were treated and 6 died. The question was thus stated, if 6 deaths occur out of 231 cases, what number of attacks had occurred to occasion 99 deaths? (the number stated in the bills of mortality to have died of fever under 10 years of age,) and I proceeded in a similar manner with the other ages.

the number of females admitted exceeded that of the males by one forty-fifth, but it is necessary to recollect that the female population in Glasgow exceeds that of the males by one-sixth, so that to make the female admissions bear the same ratio to the female population which the males bear to the male population, 1289 female admissions would be required. More extended data are required before satisfactory conclusions can be drawn regarding the susceptibility of each sex to fever.

The Glasgow bills of mortality are the only data in Great Britain from which I have been able to obtain satisfactory materials with reference to the comparative amount of mortality from fever among the male and female sex.

Table VI. Showing the ratio of mortality by fever among every 1000 of each sex in Glasgow during the year 1836.

Sex.	No. of each sex living.	No. of deaths by Fever.	Ratio of deaths per 1000.
Males,	112,707	465	4.1
Females,	131,293	376	2.8

This statement shows that the ratio of deaths from fever in Glasgow is much greater among the male than the female population. When fever raged epidemically in Ireland, it is stated that the number of men who fell victims to it were more numerous than the females.

Table VII. Shows the number of deaths in Sweden from fever, among each sex, for a period of 25 years, viz. from 1806 to 1830.*

From 1806 to 1810.		From 1811 to 1815.		From 1816 to 1820.		From 1821 to 1825.		From 1826 to 1830.	
Males.	Fem.	Males.	Fem.	Males.	Fem.	Males.	Fem.	Males.	Fem.
18644	17781	9301	9042	5905	5658	1507	1492	537	488

The average number of the population in Sweden during the period over which the above table extends was, males 1,230,676, females 1,335,172. Taking the average of the above 25 years, I find that the annual ratio of deaths per 1000 from fever in Sweden was, females, 1.39, and males, 1.11

On the Intensity of Fever.

Fevers which occur in modern times are said to be less intense than those which prevailed at a remote period. Hippocrates has left on record 37 cases of simple uncomplicated fever, 21 of which proved fatal. The London Bills of Mortality undoubtedly show, that the number of deaths by fever was much greater a century ago than at present; but this should be attributed to the diminished prevalence, rather than to the diminished intensity of fever; for it is well known that fevers and fluxes are diseases which decrease among a population in proportion as they advance in civilization. There are no documents sufficiently comprehensive or accurate to entitle us to draw a conclusion on this question.

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* Farr's Medical Almanack, 1838.

In considering the intensity of fever, I shall first state the mortality which occurred in different hospitals, without making any distinction of age; after which I will endeavour to show the influence of age and sex on the intensity of fever.

Table VIII. Showing the number of cases of Fever admitted into hospital, the number of Deaths which occurred, together with the proportion of Deaths to the number treated.

Hospitals.	Period of observ.			Number of		Intensity of the Disease.
	Yrs.	From	To	Cases admit.	Deaths	
[*] St John's Hosp. Limerick,	25	1794	1819	10954	618	1 death in 17½
[*] Do. Do.	16	1820	1836	22682	1344	1 16½
[†] Glasgow Fever Hospital,	1	1835	1836	2231	264	1 8
[‡] House of Recov. Lond.	1	1817	1818	678	50	1 13½
[§] Dub. Hosps. Gen. Abst.	9m.	1817	1818	12488	677	1 18
[‖] Do. Cork Street, Hosp.	15	1805	1819	37793	2248	1 16
[‖] Do. House of Industry,	15	1805	1819	47041	3560	1 13
[‖] Cork Hospitals,	15	1805	1819	24238	739	1 32½
[‖] Waterford Fever House,	15	1805	1819	9522	484	1 19¾
[¶] Manchester Fever Hosp.	9	1797	1805	4330	391	1 11
[¶] Glasgow Infirmary,	2	1816	1818	1155	113	1 10
[**] Lon. Fever Hospitals,	4	1825	1828	2537	381	1 6½
		Total,		175649	10869	1 in 15

This table furnishes a large number of cases. The average of the whole shows, that 1 death occurred out of 15 cases admitted. On examining the table, it may be observed, that the intensity of fever differs considerably in different hospitals. Thus, in the London Fever Hospital, there was 1 death for every 6½ cases admitted, while in the Cork Hospital, during the above period of observation, there was only 1 death in 32 admissions, which is the maximum and minimum range of intensity indicated in this table. I may here state that some of the materials obtained from Ireland during 1819 attest the accuracy of the observation, that, when fever becomes epidemic, its intensity is not so great as when the disease does not prevail epidemically. Dr Bateman endeavours to explain this by saying, that when fever is not epidemic, it is only the severe cases which are admitted into hospital ; but when the disease prevails as an epidemic the people are urged, and exertions are made to separate the diseased from the healthy, and the number of slight ephemeral cases admitted tends to reduce the force of the disease. This fact can only be ascertained by reference to the practice of military surgeons, who have under treatment all who are unable for duty ; and, consequently, they will be able to observe accurately whether fever, when epidemic, becomes more fatal, both absolutely and comparatively.

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[*] Dublin Journal of Medical Science, July 1837.

[†] Dr Cowan's Statistics of Fever and Small-Pox in Glasgow, 1837.

[‡] Bateman's Succinct Account of Fever.

[§] Dublin Hospital Reports, Vol. ii. p. 44.

[‖] Barker and Cheyne's Account of the Epidemic Fever in Ireland, 1820.

[¶] Practical Observations on Continued Fever, by R. Graham, M. D.

[**] Dr Southwood Smith's Treatise on Fever.

On the Intensity of Fever at particular periods of life.

It is now well ascertained that the mortality among a population differs at different periods of life. From birth to about 12 the ratio of mortality decreases. After 12 years of age the ratio of deaths gradually increases until about 55, when after this period of life the ratio of mortality increases very rapidly until death. This law, which is in constant operation, may have a powerful influence on patients affected with fever. To ascertain the laws which govern the intensity of any disease, it is necessary to examine several thousand cases ; for when the materials are few, any slight deviation from the law of nature is so well observed, that it tends to perplex our conclusions.

Dr Southwood Smith, Physician to the London Fever Hospital, has lately published the result of 6000 cases of fever which came under his observation during ten years ending 1834. Dr Smith has only stated the results. He has not given the facts, or number of cases at each period of life,—a circumstance which tends much to lessen the value of his deductions. The conclusion at which he has arrived, may be thus stated.

TABLE IX. Showing the number of deaths that occurred out of 1000 individuals attacked by fever during each decennial period of life.

Between Ages.	No. of deaths out of every 1000 cases of fever during each age.	Proportion.
10 and 20,	99	1 death in 10 cases
20 - 30,	143	1 - 7
30 - 40,	195	1 - 5
40 - 50,	262	1 - 4
50 - 60,	356	1 - 2¾
above 65,	446	1 - 2

Consequently, of 1000 individuals attacked by fever between the age of 10 and 20,—99 died, being 1 death of every 10. Out of 1000 cases among persons between 20 and 30,—143 died, or 1 in 7. The fatality of the disease increases rapidly as the age advances.

Mr Edmonds, a statistical writer of great eminence, has published some observations on the laws of sickness. * He has shown that about 30 per cent. of the living are annually attacked by sickness, and 3 per cent. of the living are *constantly sick.* This observation is made without reference to age, but he has found that the ratio of sickness increases as age advances. In the same paper he has ascertained, that among a given number of fever cases the mortality increases in a direct ratio. Thus in the preceding table it will be observed that the mortality from fever increases 34 per cent. every 10 years the patient advances in life, and the mortality at any given year of age exceeds that of the preceding year by about 3 per cent.

The mortality or intensity of the fever cases treated in the London Fever Hospital (and from which cases the above law has been deduced) is much greater than the results given in Table No. VIII. I have therefore, with the view of ascertaining whether or not this law holds good in other cases, where the ratio of deaths is not so high, compiled the following table from Dr Cowan's pamphlet on the Statistics of Fever and Small-pox in Glasgow, and Dr Geary's Report of the Limerick Fever Hospital.

Table X. Showing the ratio of Deaths per 1000 among Fever Patients at different ages, and the number of Deaths to the number admitted.

Age.	Number of admissions.	Deaths.	Ratio of deaths per 1000.	Proportion of deaths to admissions.	
under 5	122	3	24	1 death in	40
5 to 10	679	18	26	1	37
10 20	2281	106	46	1	21
20 30	1377	139	101	1	9
30 40	598	113	189	1	5
40 50	277	84	303	1	3
50 60	101	29	287	1	3
60 70	19	6	304	1	3
above 70	4	1			

The numerical results in the above table do not exactly correspond with the law which has been stated regarding the increase of the mortality according to age, indicated in Table No. IX. But it corresponds in this respect, that the ratio of deaths increases very rapidly as life advances. In the above table the increase of mortality between the decennial periods 20 and 30, 30 and 40, and 40 and 50, is considerably more than 34 per cent. The lower ratio of deaths indicated in Table X. compared with the London Fever Hospital, may be attributed to the great number of patients under 20 years of age. To this circumstance may often be attributed the great difference in the intensity of fever at different hospitals, and it shows the necessity in all reports of stating the mortality and number of patients treated during decennial periods of life.

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* Lancet, Vol. i. 1835–6, page 855.

On the Intensity of Fever as influenced by Sex.

Having considered the influence of age on the intensity of fever, I shall now examine how far the sex of patients influences the intensity of the disease. The following materials are compiled for that purpose.

Table XI. Showing the number of Deaths which occurred among the Male and Female Fever Patients admitted into the undermentioned Hospitals, together with the proportion of Deaths to the number treated.

Males.			Females.		
No. admit.	Deaths.	Intensity of the fever.	No. admit.	Deaths.	Intensity of the fever.
2883*	179	1 death in 16 cases	2849	141	1 death in 20 cases
1277†	57	1 22	1452	52	1 27
1832‡	100	1 13	1895	135	1 14
1116§	180	1 6	1141	110	1 10
559‖	72	1 7	596	41	1 14
1229¶	190	1 6	1308	191	1 7
8396	778	1 in 10½	9241	670	1 in 14

It appears that in every hospital referred to in the above table, the intensity of fever was greater among the male than the female patients. Taking the average of the whole table we observe that among the males 1 death occurred for every 10 patients admitted, whereas among the female patients there was only 1 death for every 14 cases.

Dr Cowan, in his Statistics of Fever in Glasgow, has given tables of the mortality from fever, including both sexes at different periods of life. From these tables it appears that at almost every age the intensity of the fever among the males exceeded that of the females. At the age of 15, the intensity was much the same in both sexes. At 30 years of age, the mortality of the male sex was more than double that of the female. The rate of mortality, or intensity of fever was greatest among females at the age of 45. The mortality of males under 20 years of age, was 6 per cent. or 1 death for every sixteen admissions; the mortality of females under 20 years of age was 4.9 per cent., or one death for every twenty admissions.

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* Cork Street Fever Hospital, Dublin, Barker and Cheyne, Vol. i. p. 91.

† Fever Hospital Waterford, Ibid., p. 193.

‡ Limerick Fever Hospital, Dr Geary's Report.

§ Glasgow Infirmary, 1886, Dr Cowan's Statistics.

‖ Glasgow Fever Hospital, 1816 and 1818, Dr Graham on Fever.

¶ London Fever Hospital, Dr S. Smith's Treatise on Fever.

It is difficult to offer a satisfactory opinion regarding the various circumstances which influence the course of fever. But having ascertained that the intensity of fever is greater among the male than the female sex, the question naturally arises, to what cause can this be attributed? When treating of the subject of prognosis, it will be shown that the fatality of fever depends in a great measure on the tendency which exists in the constitution of the patient to be attacked by internal inflammations,—and as females are said to be less liable to congestion of internal organs than males, this circumstance may account for the diminished fatality of fever among females.

On the influence of the seasons on the prevalence and intensity of Fever.

Physicians have been constantly observing the influence of the seasons in retarding or accelerating the progress of epidemic diseases. The plague of Egypt, the bilious fever of Spain, the yellow fever of America, and the malignant fever of this country, are different forms of fever, which prevail at particular seasons of the year more than at other seasons. When individual cases of any of these diseases occur at a season when there is no tendency to its spreading among the inhabitants, the disease is said to be sporadic, which circumstance shows that the season is unfavourable for its development.

Before entering on the consideration of the influence of the seasons in Great Britain, on the prevalence and intensity of fever, I may briefly allude to two most important phenomena regarding the climate, namely, the temperature and quantity of rain. There are many other circumstances to be investigated when describing the climate of a country, but the temperature and moisture of the atmosphere are admitted to be the most characteristic phenomena, and perhaps have most influence on the health of man.

The mean annual temperature of Great Britain from the observation of a great many years has been found to be 49.2 Fahrenheit's scale. The range of temperature during the course of the different months is of considerable extent. The average quantity of rain falling annually in Great Britain is about 25 inches. The average quantity falling during each month is exhibited in the following table.

Table XII. Showing the maximum, minimum, and mean temperature in Great Britain during each month, from the observation of about thirty years, together with the average monthly quantity of rain in inches from thirty-four years observation, (from 1797 to 1830.)*

Months.	Temperature. Maximum.	Minimum.	Mean.	Average quantity of rain in inches.
January,	52	11	36	1.90
February,	53	21	38	1.49
March,	66	24	43.9	1.39
April,	74	29	49.9	1.84
May,	70	33	54	2.00
June,	90	37	58.7	1.94
July,	76	42	61	2.55
August,	82	41	61	2.15
September,	76	36	57	2.29
October,	68	27	48	2.41
November	62	23	42	2.79
December,	55	17	39	2.58

From the above it appears that July and August are the months during which the average temperature is greatest, and that the quantity of rain falling during the last six months of the year is considerably more abundant than during the first six.

Having adduced these materials to show the degree of temperature and moisture of Great Britain, I shall now consider the influence of the seasons on fever.

Fever prevails during the whole year among the poorer classes resident in the large and densely inhabited cities of great Britain; but it is found to be more prevalent at certain seasons than at others. Drs Willan and Bateman state, that in London fever increases during the autumnal, and decreases on the approach of the winter months; a statement which is confirmed by the bills of mortality. The following table I have compiled from materials selected indiscriminately from all the reports which I could obtain, showing the number of fever cases admitted into the various hospitals in Great Britain and Ireland; but I am chiefly indebted to Drs Barker and Cheyne's account of the epidemic fever which prevailed in Ireland in 1817, 18, and 19.

Table XIII. Showing, that of 51,944 cases of fever admitted into different hospitals in Great Britain and Ireland, the number and relative ratio of admissions in each month were as follows.

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* Howard on Climate of London, 2d edit. Vol. i. p. 136.

Months.	No. of cases admitted.	Relative ratio of admissions per cent.
January,	2895	5.6
February,	2825	5.4
March,	3152	6.1
April,	3374	6.5
May,	3990	7.6
June,	4365	8.3
July,	4999	9.6
August,	5261	10.1
September,	5046	9.7
October,	5624	10.8
November,	5054	9.7
December,	5359	10.6
Total,	51944	100.0

It appears from this table, that the greatest number of fever cases were admitted into the different hospitals during the last six months of the year, or from July to December. And the number of cases admitted from January to June are few compared with the admissions from July to December. The right hand column of the above table may be read thus: Out of 100 cases of fever occurring during the year 5 would take place in January, 5 in February, 6 in March, 6 in April, and so on. The object of this column is to render more obvious the proportion which the number of admissions bear to each other. It may be observed, that fever cases were nearly twice as numerous in August, September, October, and December, as they were in January, February, and March. The conclusion which is drawn from this table corresponds with observations made on the prevalence of fever in the United Sates of America. Dr Gallup, in his "Sketches of Epidemic Diseases" in the state of Vermont, says, that fever is most prevalent from July to September, but that it extends into the early part of winter.

The greater prevalence of fever at certain seasons than at others has been attributed by some authors to the scarcity of food and clothing among the poor. That poverty and want of food will tend materially to increase the liability to disease is certain, but the conclusions furnished by the above table do not seem to favour the opinion that the prevalence of fever is to be attributed solely to poverty. It is well known, that during the months indicated in this table, as occasioning the greatest number of fever cases, the poor are actively employed in the labours of the field, and in autumn the food is generally cheaper than during the months of January, February, and March.

Having seen that the seasons have an influence on the prevalence of fever, I shall now examine, whether or not they have any influence on the intensity of fever.

It has long been observed, that autumnal are more severe and intractable than vernal intermittents, and it has been assumed that this is also the case with the other types of fever. The annexed table may perhaps throw some light on this subject.

Table XIV. Showing the number of fever cases admitted monthly into several of the Hospitals of Great Britain and Ireland, the number of deaths, together with the proportion of deaths to the admissions.

Months.	Number of		Proportion of deaths to the number of admissions.	
	Admissions.	Deaths.		
January, -	2591	187	1 death in	13 cases
February, -	2537	151	1	16
March, -	2798	139	1	20
April, -	2963	133	1	22
May, -	3506	175	1	20
June, -	3848	132	1	29
July, -	4478	118	1	37
August, -	4654	161	1	25
September,	4429	180	1	24
October, -	4820	197	1	24
November,	4446	202	1	23
December,	5002	214	1	23

From the above table, it may be observed, that there is a considerable difference in the intensity of fever at different seasons. During the first five months of the year, or from January to June, the intensity of fever is much greater than during the other months. In January 1 death occurs for every 13 cases admitted into hospital. Whereas in July and August, 1 death only occurred for every 37, and 25 admissions. Compare the above table with Table XIII. and it will be observed in what a remarkable manner they correspond in this respect, that during those months when fever is most prevalent the intensity is least, whereas during those months when the disease is not so prevalent the intensity is greatest.

This information having been obtained, I shall here endeavour to ascertain in what manner the climate appears to occasion these results. The year has been divided into four seasons, but these seasons do not occasion any sensible difference in regard to the prevalence or intensity of fever. From January to June and from June to December are the two well marked periods, in which the intensity and prevalence of fever is altered,—a fact which the following table clearly shows.

TABLE XV. Showing the mean monthly temperature and mean quantity of rain in inches during January, February, March, April, and May, and also during the other months of the year, together with the average proportion of fever cases admitted into hospitals during each of these months, and intensity of the disease.

Periods.	Monthly temperature.	Monthly quantity of rain in inches.	Out of 100 cases of fever during the year, the following would occur in each mon.	Intensity of the fever.
January, February, March, April, & May,	44.3	1.72	6.2	1 death in 18
June, July, August, September, October, Novemb. and December.	52.2	2.36	9.8	1 - 26

This table may be thus read: During the first five months the mean temperature of each month was 44.3, and the average quantity of rain during each month 1.7 inches, and out of 100 cases of fever which occurred during the year, 6 of these cases occurred in each of the first five months, and 9 in each of the latter period. From this table it also appears, that during the months fever is most prevalent the climate is, on an average, eight degrees warmer, and the quantity of rain considerably greater than during the months in which the disease is not so prevalent. It may also be observed from this table, that during the months the intensity of fever is greatest the climate is colder and dryer than when fever, is not so intense. I might examine more minutely this interesting subject, but the nature of this paper prevents me from doing so. Every practical man will be able to confirm the above results by his own experience. Dr Tweedie, in the article Fever, Cyclop. Pract. Medicine, Vol. ii. p. 94, observes, " It is by no means uncommon to observe the prevalence of fever sensibly checked when the air is dry and cold."

It is necessary to recollect that, although the intensity of fever is much greater in January, February, and March than in the other months, yet from the increased prevalence of fever, the greatest number of deaths occur during the latter part of the year, or from August to December.

TABLE XVI. Showing that out of 3205 deaths from fever among the population of New York from 1816 to 1826, the number and relative ratio of deaths per 1000 in each month were as follows:—

Months.	Deaths.	Relative ratio of deaths per 1000.
January, -	178	53
February, -	137	43
March, - -	158	49
April, - -	186	57
May, - -	211	66
June, - -	245	77
July, - -	262	82
August, - -	374	117
September, -	497	156
October, - -	441	137
November, -	305	96
December, -	211	67
Total,	3205	1000

On the Influence of medical treatment on Fever.

It has been truly observed of many branches of science that much labour and inquiry is necessary to establish a single important fact, and to no subject in medical science can this observation be more justly applied than to the influence of medical treatment on fever.

Doubts are frequently expressed by well informed men, and even by some medical men, regarding the power of medicine in controlling disease. I am well aware that many individuals, while in the enjoyment of good health, frequently throw doubts on the efficacy of medicine, and indulge in a jest at the expence of the doctors; but these men are no sooner confined with sickness than they eagerly employ remedies and submit to all the discipline of a medical man. A medical writer, with the view of showing that medicine does not possess that confidence which it ought, says, that insurance offices take no notice, or at least do not take into consideration the efficacy of medicine in prolonging life; for although, he observes, insurance offices make minute inquiries, whether the person whose life they insure is liable to any malady tending to curtail his existence, they make no agreement with him that when attacked by sickness he shall send for a physician.

Dr William Brown of this city, and Emeritus Surgeon to the Royal Infirmary, published in the Annals of Medicine for the year 1802, a paper, in which he concluded that the means then employed for the treatment of fever did not shorten the duration of that disease. In the year 1818, he published a small pamphlet (Pp. 65,) entitled "An attempt to estimate the power of Medicine in controlling Fever." Dr Brown in his essay arrives at the conclusion that medicine has no influence in controlling fever. It is difficult from several expressions in that paper to know exactly the author's opinion; for in the preface, page 7, he remarks, "I trust

I have succeeded in showing, what indeed is openly expressed by some part of the medical profession, and suspected by almost all men, that we cannot stop the course of this disease. "But I do not wish to be misunderstood. While my conviction of this truth is firmly established, I am not less convinced that the due application of medicine most certainly renders fever more easily borne, and prevents death in many instances." The last sentence in this quotation shows that medicine has a highly beneficial influence; namely, in lessening the danger and alleviating the sufferings of a fever patient.

When investigations are made to ascertain the influence of medicine in controlling disease it is necessary to state the number of deaths and recoveries which occur among the patients under treatment. The greater the number of cases reported, the more reliance can be placed on the deductions, for it requires the observation of several thousand cases to determine the course of a disease, or measure the influence of any particular treatment. If some test of this kind had been necessary to support the efficacy of any new remedy or mode of practice, before it was introduced into the materia medica, the teacher of that branch of medicine would not have had such an extensive number of useless drugs to lecture on as at present.

The great object of the medical art is to shorten the duration and prevent or diminish mortality of disease. The employment of medicine or medical treatment in disease may be useful in four different ways. *First*, by reducing the number of deaths among a certain number of cases. *Secondly*, it may be useful by shortening the duration of the disease. Thus for example, it has been found by Sir James M'Grigor, that of 4139 cases of venereal sores treated in the army, those cases treated without mercury were cured in twenty-one days, while those cases treated with mercury were not cured until thirty-five days; a result which shows that the employment of mercury tends to prolong the duration of this disease. *Thirdly*, Medical treatment may be useful in alleviating pain and prolonging life, by averting the fatal event in diseases of which the greater number of those attacked die, as consumption and carcinoma. *Lastly*, Medical treatment may be useful in preventing disease, as for example the prophylactic power of belladonna in checking the contagion of scarlet fever. This fourfold manner in which medicine may be useful in controlling disease shall now be considered in so far as it refers to the treatment of fever.

On the Influence of Medical Treatment in lessening the Intensity or Mortality of Fever.

To enter on a rigid examination of this question, the first point necessary to be ascertained is, what mortality would occur among a given number of fever cases left to nature? Having obtained this information, we next take several thousand cases of fever, and place them under various modes of medical treatment, such as bleeding, stimulating, &c. and compare the ratio of deaths which occurs among the cases treated by nature, and by the art of man. This plan or test, I need scarcely say, can never be obtained, as it would be unjustifiable in the present state of our knowledge.*

Assuming Table VIII. which presents the ratio of deaths occurring among a large number of fever cases as a pretty near approximation to the average mortality (1 death in 15,) any mode of medical treatment which reduces the mortality below that may be said to be beneficial.

I might have here inserted some of the data Dr Brown has quoted in his essay from authors who have written for the express purpose of showing the usefulness of a particular mode of practice in the treatment of fever; but the materials, from which the conclusions have been deduced, are so limited, and the accuracy of some of the statements given having been doubted, I consider it better to take no notice of them, as these materials cannot assist in the elucidation of this subject. The only materials I have obtained which could be arranged so as to show the influence of medical treatment in lessening the mortality of fever are the following.

Fever patients are admitted into hospital during the whole course of the disease; some come under treatment on the first, second, third, and fourth day of the disease, and others later. Now it must be obvious, that should the employment of medical treatment possess any influence in reducing the mortality, and thereby lessening the danger of fever, the number of deaths ought to be greater among those patients who are admitted late in the disease, than among those cases which have been under medical treatment from the first day of the disease. The following table has been compiled for the purpose of showing the beneficial influence of medical treatment on fever, from Dr Geary's Report of the Limerick Fever Hospital, and Dr Craigie's Clinical Report in the 46th and 47th Vols. of Edin. Med. Journal.

Table XVII. Showing the number of deaths which took place out of a number of cases of fever, admitted into hospital on different days of the disease, together with the proportion of deaths, to the number treated.

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* Dr Percival, in the first volume of the Trans. College of Physicians Dublin, p. 317, states, that it has appeared from bills of mortality, that in places where typhous fever has been suffered to commit its ravages, with little or no control from medical treatment, one-fourth and even one-third of those attacked by it have died.

Days of the Fever on admission.	No. of Cases admitted on each day.	No. of Deaths.	Proportion of Deaths to the no. admitted.
1	2	0	none
2	97	4	1 death in 24 cases
3	336	12	1 - 28
4	535	33	1 - 16
5	575	35	1 - 16
6	528	41	1 - 13
7	318	38	1 - 8½
8	525	41	1 - 18
9	193	16	1 - 12
10	140	23	1 - 6
11	36	2	1 - 18
12	48	6	1 - 8
13	21	3	1 - 7
14	83	10	1 - 8
over 2 weeks	97	31	1 - 3

This table may be thus read. Of two cases of fever admitted on the first day of the disease, none died; of 97 on the second day of the fever, 4 died; or 1 death in every 24 cases; of 336 admitted on the third day 12 died, or 1 in 28, and so on. The above table shows in a strong manner the influence of medical treatment in lessening the fatality of fever. The sooner a fever patient is admitted into hospital, the danger of a fatal termination is diminished, and the danger increases the longer the time that elapses before medical treatment commences. Thus of those cases of fever which came under treatment on the third day of the disease, 1 in 28 died, whereas of those cases admitted after fourteen days had elapsed from the first attack, 1 out of every 3 died. I am well aware that objections may be urged against the above table. It may be said that, although the fever patients were only admitted into hospital on the seventh day of the fever, they had probably been under medical treatment before that period and again it may be said that some fever cases are not sent into hospital unless malignant symptoms appear. To these objections I reply, that the very great difference in the mortality, the number of cases, and often the difficulty of determining in the first few days of fever, whether it will be severe or not, are strong arguments against these objections, particularly when taken in conjunction with the results indicated in Table XIX. showing the power of medical treatment in shortening the duration of fever. There would appear, however, to have been no material difference in the intensity of the fatal fever cases when admitted into Dr Craigie's Clinical Wards, if the pulse affords any indication of the intensity of the disease; for of 51 fatal cases, the pulse on admission was on an average 104 in a minute; and in 280 successful cases, the pulse on admission was 105½.

Dr Welsh, in his practical remarks on the fever epidemic in

Edinburgh in 1818, states that all those cases which terminated favourably, were admitted on an average on the seventh day of the disease, whereas of the fatal cases which occurred, nine days of the disease had elapsed before admission. In Dr Craigie's reports, the average day of the fever on admission of 45 fatal cases, was the eighth, and of 280 recoveries, the patients were admitted about the seventh day.

When reasoning on the value of different remedies, or modes of treatment in fever, it is necessary, so as to form a correct idea of their efficacy, to recollect the important law which has been stated regarding the mortality at certain ages. If out of 100 patients with fever at twenty years of age, we lose 11 by death, and out of 100 at forty we lose 22, the influence and success of our remedies are the same in each case.

On the influence of Medical Treatment in shortening the duration of Fever.

The second method which I stated medical treatment might be useful, was in shortening the duration of disease. It is necessary before entering on the examination of this subject to ascertain the average duration of fever.

M. Louis, in his essay on the examination of the sick, which has been alluded to in another part of this paper, remarks, "of what malady do we know the mean duration?" A writer in an English Journal, in reviewing that essay, inquires, "what numeration table would satisfy any experienced man concerning the probable duration of epilepsy, or of mania, or even continued fever, the duration of which so many circumstances may prolong?" This question may appear, to those who have no idea of the advantage of the numerical method of analysis, a well-founded remark. And when we consider the complicated structure, and the innumerable diseases to which the human body is subject, all tending to shorten the duration of life, it might be supposed that no accurate opinion could be formed regarding the average duration of the life of man. Such, however, is well known not to be the case; for by adopting the numerical method of investigation, the average duration of life, and even the expectation of life at particular ages, has been accurately ascertained; a circumstance which has rendered the science of life insurance, not, as some have imagined, a mere lottery, but an exact, certain, and practical art. When, therefore, we know there are certain laws which regulate the passing away of one generation, and the development of another, may not also a law exist regarding the average duration of all diseases?

Dr William Brown, in his essay formerly alluded to, informs us that the mean duration of fever at Edinburgh, about the end of the last century, was 13 days; of the fever treated by Dr Stoker and Dr Mills, 11, and of the fever at Edinburgh, in 1817, the mean duration was 12½ days. In these instances the disease was said to have terminated when the stage of convalescence commenced; now it must be obvious that there is great difficulty in determining when a fever ceases, and when convalescence commences. It is therefore better, and indeed it is the only method by which we can have confidence in our observations on the duration of any disease, not to reckon it to have terminated until the patient has been discharged from hospital. I am aware that this not only indicates the duration of the disease, but also the recovery to a certain state of health, yet this may be said to be a part of the disease, and the important question is, how long will a patient attacked by fever be confined? It is important not to confound the average residence in hospital with the average duration of the disease, because the fever may have existed for several days before the patient's admission, and which must be added to the length of residence in hospital, in order to ascertain the duration of the disease.

Dr Bateman* states, that of 678 fever patients received into the London House of Recovery, the average duration of the disease from the first attack to the discharge from hospital was twenty-six days.

Dr Welsh† details 743 cases of fever, the average duration of which on dismissal was twenty-seven days. In the appendix to Dr Southwood Smith's treatise on Fever, it may be observed by computation that the average duration of 569 cases was thirty-two days.

Dr Latham has reported 296 cases of fever, the mean duration of which was three weeks and a-half, or 25 days. From Dr Craigie's Clinical Reports,‡ I find, that of 344 cases of fever which came under his treatment, the average duration of the disease was 27 days. Taking the average of the above materials, it appears that the average duration of 2630 fever cases was 27 days.

These extracts are given without reference to age; but as it has been shown how much the age of the patient influences the mortality, it would be satisfactory to know in what respect the age of the patient affects the duration of fever.

It has been ascertained from the observation of benefit sick societies, that there is about two years of sickness to each death, and as the deaths increase by age, the average quantity of sickness suffered by persons advanced in life is greater than among young people. This law may be safely applied to fever cases; for as the ratio of deaths out of fever patients increase about 3 per cent. for every year's increase of age, it may consequently be inferred that the duration of fever is in proportion to the mortality at each age. The following table presents some interesting conclusions which have reference to the preceding observations.

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* Succinct Account of Fever, p. 85. † Practical Essay on Blood-letting.

‡ Edinburgh Medical Journal, xlvi. and xlvii.

Table XVIII. Showing the mean duration of fever, both under and above 40 years of age, in 316 cases which recovered,* and 164 which proved fatal.†

	No. of cases.	Mean age.	Mean duration In days.	Below 40 years.	Above 40 years.
Recoveries,	316	22⅓	32	30	35⅓
Deaths,	164	36	16	16	15⅓

Tables similar to the above would furnish many interesting facts. Thus, the mean age of the fatal cases was 14 years more advanced than the recoveries. The duration of the fatal cases was 16 days shorter than the recoveries, and it will also be observed, that the mean duration of those cases above 40 years of age was about 6 days longer than those under that period of life. The average duration of fever at all ages is somewhat about 27 days. This also includes the duration of the fatal cases, which it will be observed are much shorter than the recoveries. Having obtained this information, we are now in some measure able to appreciate the influence of medical treatment on the duration of fever.

Dr Brown has endeavoured to prove that medical treatment has no power in controlling the duration of fever, and that medicine was as effectual when applied on the sixth, seventh, or eighth day of the disease, as at an earlier period. He has endeavoured to show this, by examining the duration of fever cases under medical treatment at several stages of the disease. Thus, of 41 cases admitted on the fourth day of the fever, 13 were cured before they were four days in hospital; of 35 admitted on the eighth day, 9 recovered during the first three days. It must be obvious that this is an imperfect, if not an erroneous, method of examining this question, for it may be observed, that the cases admitted into hospital on the fourth day of the disease had a fever of shorter duration than those admitted on the eighth day. This, however, is well shown in the following observations which Dr Young has made in his "Introduction to Medical Literature," when alluding to the data from which Dr Brown had formed his opinion. "The result," Dr Young observes, "of 300 cases of fever admitted into the infirmary in question, may be very simply stated in this manner; the mean duration of the whole disease was 12 days, the mean time of admission was between the sixth and seventh day; but the mean duration of those cases which were admitted at the commencement of the disease, was somewhat less than 9 days. Hence, it may be inferred, not only that the duration was shortened at least 3 days by the early employment of medical agents, but also that this difference was the effect of a difference of only three and a-half days in the time of the whole treatment. Since the remedies were employed for 9 days in the one instance, and for five and a-half in the other; consequently, if these five and a-half days had been suffered to elapse without medical treatment, the whole period of the disease would have been lengthened four or five days, by the omission, at least, if we adopt the simplest supposition respecting the proportion of the cause and effect, and that the natural duration of the disease thus determined would have been about 16 days instead of twelve, so that the means employed must be allowed to have a claim to the merit of reducing the duration of fever from about 16 to 9 days."

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* Dr Craigie's Clinical Reports, Edin. Med. Journal. Clinical Reports by Andrew Duncan, M. D., Edin. 1818.

† Dr Craigie's Reports.—Hardwick Fever Hospital, in Dublin Hospital Reports, Vol. i. and ii. Dr Welsh's Practical Treatise on the Efficacy of Blood-letting in Fever.

To this criticism Dr Brown has made the objection, that taking the mean duration of the cases is an improper manner of examining the materials; the importance of which objection, I do not rightly comprehend. The following table I have compiled for the purpose of showing the influence of medical treatment in shortening the duration of fever, from Dr Duncan's Clinical Report, 1818, and Dr Craigie, Edin. Med. Journ.

Table XIX. Showing the average duration of 316 successful Fever Cases admitted into Hospital on different days of the Disease,

Day of disease.	Number of cases.	Mean duration of each case in days.
1	2	18
2	13	20
3	17	31
4	37	31
5	38	28
6	51	29
7	23	32
8	52	34
9	26	38
10	13	31
11	8	36
12	9	36
13	4	37
14	11	39
above 14	12	46

The above materials show in a very satisfactory manner, that the earlier a fever patient submits to medical treatment the duration of the disease will be shortened. When observations are made on few cases, any deviation from the general rule is rendered obvious. There are some slight variations in the above table which may be attributed to this cause. Taking the average of all the cases, 181 in number, which came under treatment before the 8th day of the fever, the average duration of each case was twenty-seven days; whereas 135 cases which did not come under medical treatment until after the 7th day of the fever, the average duration of each case was thirty-seven days, or ten days longer than those cases which were under treatment from nearly the commencement of the fever. This is a strong argument in favour of early medical treatment in fever, and I should think, were the data more extensive, that a result equally satisfactory would be obtained.

When fever patients are confined in small and crowded apartments, the disease is liable to assume a typhoid character. Medical men who are attached to fever hospitals, are often struck with the improvement which occurs in a fever case shortly after admission. This favourable change is not to be attributed to the medical treatment employed so much as to the effect of a purer atmosphere, more frequent ablution, and changing of linen, than their circumstances would admit, but which are so essential in fever.

On Prognosis in Fever.

The general prognosis in fever is favourable. Out of 15 cases of fever there is 1 death, (see Table No. VIII.) consequently there is fourteen chances to one that the termination will be favourable. In fevers, as well as most other diseases, the prognosis is more unfavourable at the commencement of the malady than after the lapse of some days, for the patient has then escaped part of the disease. This fact will be seen on examining the remarks on critical days. It is on the same principle that we say a soldier has less danger to be shot in the middle of an action than at the commencement, for by the middle of the battle he has escaped all the balls in the morning, and is then only exposed to those of the afternoon.

Influence of Age.—It has been shown that the age of a fever patient has a powerful influence on the intensity of the disease. The more advanced the age, the more unfavourable the prognosis. From the data given by Dr Southwood Smith, it may be observed, that after 10 years of age the prognosis of fever is 3 per cent. more unfavourable every year the patient advances in life, which is the same as saying that the mortality during any decennial interval of life increases about 34 per cent. or one-third part greater than during the preceding decennial interval, or, that the mortality out of a given number of fever cases doubles in about twenty-three years and a-half. Thus the risk of life is about twice as great when attacked by fever at the age of 31 as at 11. It is also nearly twice as great at 41 as at 21. It is five times as great at 61 as at 11, and nearly four times as fatal above 65 as it is at 21. (See Table IX. and X.)

Influence of Sex.—The prognosis of fever in the female sex is more favourable than in the male, (See Table No. XI.) In the male sex 1 death out of every 10 admissions occurred, whereas in the female there was only 1 death out of every 14 cases, consequently the prognosis is about one-third more favourable in the female than the male sex.

Influence of Season.—The season of the year at which a case of fever occurs has a considerable influence on the prognosis. Thus Table No. XIV. shows that the fever which prevailed in the summer and autumn months, or from June to December, was not so intense as the fever which prevailed from January to June. Out of 14,395 fever patients treated from January to June, 785 died, or 1 death out of every 18 cases; whereas out of 31,677 cases treated from June to December inclusive, 1204 deaths occurred, which is only 1 death out of every 26 cases. These materials demonstrate that the prognosis of fever is more favourable from June to December, than from December to June.

Influence of medical treatment.—There are no observations recorded of sufficient extent to show the influence of any particular mode of treatment in fever being more successful than another. We have, however, very satisfactory evidence, drawn from pretty extensive data, that medical treatment is beneficial in lessening the mortality in fever. Consult Table No. XVII. and it may be observed, that the sooner a fever patient submits to medical treatment, the prognosis is rendered so much more favourable; a fact which the subjoined statement clearly shows.

TABLE XX.—Showing the advantage of medical treatment in fever being commenced before the seventh day of the disease, (compiled from Table XVII.)

Day when medical treatment commenced.	No. of cases.	No. of deaths.	Proportion of deaths to recoveries.
Before the seventh day,	2073	125	1 death out of 16½ cases.
After the sixth day,	1461	170	1 death out of 8½ cases.

Thus it appears from the above table, that of 2073 fever cases admitted into hospital before the seventh day of the disease, 125 died in passing through the fever, which is one death out of every 16½ cases,—whereas of those cases which came under medical treatment, after the sixth day of the disease, the deaths were one in 8½. From these data we conclude that the prognosis in fever is nearly one-half more favourable among those cases which come under medical treatment before the seventh day of the disease, than cases admitted at a more advanced stage.

Influence of complications in Fever.—Fever of all kinds is liable to be complicated with affections of the internal organs of the body. They may be divided into four classes; 1*st*, cerebral; 2*d*, thoracic; 3*d*, abdominal; 4*th*, mixed.

Cerebral complications.—The organ most liable to become affected in fever is the brain. The relative frequency of this complication will be shown. The principal symptoms denoting it are violent headach, suffused eyes, dilated pupil, delirium, and coma.

Thoracic complications.—The heart, lungs, and pleura are the organs liable to be implicated. The complications may assume the forms of bronchitis, pleurisy, peripneumony, or pericarditis. The most common affection is bronchial inflammation, characterized by cough and mucous, or sometimes purulent expectoration.

Abdominal complications.—The organs liable to be affected are the mucous membrane of the intestines, peritoneum, and liver; but of all the structures within the abdomen, the mucous membrane of the bowels is most prone in fever to assume a diseased action.

Mixed complications.—Under this term is included all those complications in which more than one of the cavities are affected, such as well marked thoracic and abdominal, or cerebral and thoracic symptoms.

The relative frequency of the above complications in fever is a subject not devoid of interest, and has engaged considerable attention. The following statement has been compiled for the purpose of showing their relative frequency.

TABLE XXI. Showing the number of cerebral, thoracic, abdominal, and mixed complications in 1501 cases of fever.[*]

Simple fever, - - - - -	374 cases.
Fever with cerebral complications, -	375
thoracic do. - -	264
abdominal do. - -	180
mixed do. - -	308
	1501

This statement shows the great frequency of cerebral complications, but I need scarcely observe, that the relative frequency of these complications will differ considerably during different seasons or epidemics. In all cases of fever where there occurs any of the above complications, the prognosis is more unfavourable than in simple uncomplicated fever. That this is the case will be proved by the following table, the materials of which have been compiled from Dr Alison's excellent paper on Fever, in the 28th volume of the Edin. Med. and Surg. Journal, and Dr Craigie's Clinical Reports.

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[*] Compiled from cases in Dr Smith's Treatise on Fever—Fever Cyc. Prac. Med. p. 175; Dr Alison in Edin. Med. and Surg. Journal; and Dr Craigie's Clinical Reports, Ibid.

Table XXII. Showing the number of Deaths which occurred out of cases of simple fever, of fever with cerebral, thoracic, abdominal, and mixed complications, together with the proportion of deaths to the number of cases.

Complications.	No. of cases.	No. of deaths.	Proportion of deaths.	
Simple fever,	211	3	1 death in	70 cases
Cerebral complications,	195	43	1	4
Thoracic do.	82	16	1	5
Abdominal do.	79	1	1	79
Mixed do.	136	30	1	4½

From this table it may be observed, that simple fever, or fever unattended with any marked internal inflammation, the prognosis is very favourable; but in cases accompanied with cerebral, thoracic, and mixed complications, the prognosis is unfavourable. The exact ratio may be calculated from the above table.

When fever prevailed epidemically in Ireland about 1818, it was observed that the mortality was greater among the rich than the poor,—a circumstance which has also been observed in this country, but which, for want of materials, we cannot prove statistically. This greater fatality of fever has been attributed to the inflammatory diathesis being more powerful among the rich than the poor, and the foregoing table shows, that it is from the complications in fever that there is most danger to be dreaded.

Influence of certain days on Prognosis.—The consideration of this question naturally leads to the investigation of the doctrine of critical days in fever. This is a subject of the greatest difficulty, and on which I have not been able to obtain any very extensive materials. I may here state, that Dr Welsh, in his practical Essay on Blood-letting in Fever, has given some extensive data. There can be no doubt that fever is more dangerous at certain stages than at others, and that the prognosis becomes more favourable as the disease advances in its course. This fact will be rendered obvious by the following table, the materials of which are compiled from Dr Craigie's Clinical Reoprts, so often previously referred to.

Table XXIII. Showing the number of Deaths and Recoveries out of a certain number of Fever cases, together with the ratio of deaths and recoveries out of 1000 cases on each week of the disease,—the 1000 being constantly kept up.

Week of Fever.	Weekly number of Cases under treatment.	Deaths.	Recoveries.	Out of 1000 cases in each week of the fever there Died.	Recovered.
First, -	194	2	2	10	10
Second, -	306	25	18	82	58
Third, -	275	11	39	40	142
Fourth, -	225	8	60	35	266
Fifth, -	157	5	65	31	414
Above 5th	77	3	74	39	963

From this table it may be observed, that during the first week of fever there are few deaths or recoveries. M. Chomel states, that of 42 fatal cases of fever, only 1 death took place on the first week of the disease. The second week, or from the seventh to the fourteenth day, is the most dangerous period of the whole disease, for out of 1000 cases this week 82 died. During the third week of fever, the ratio of deaths were only half as numerous as during the second week, while the ratio of recoveries were twice as numerous. This conclusion does not correspond with that of Chomel, who states, that out of 42 deaths from fever, 32 died in the third week of the disease, whereas it appears by the above table, that of 54 deaths 11 of them only took place on the third week of the disease. After the second week in fever the ratio of deaths decrease, and the recoveries rapidly increase.

Dr Cullen observes, that "in fever we should endeavour to obviate the tendency to death." This useful hint, the importance of which is well shown in the preceding table, it is necessary to keep in recollection, for if we can support a fever patient through the second week of the disease, and carry him on safe until the seventeenth or eighteenth day of the fever, the prognosis is favourable.

Fevers which have a tendency to the remittent character are most available for the doctrine of crisis. It is doubtful whether the fevers of this country terminate on particular days. It has been urged in opposition to the question, that fatal cases occur during the whole course of fever, which is undoubtedly the case. But it is only said by those who support the doctrine of critical days, that, taking the average of the deaths, a great proportion of them occur on the fourth, seventh, eleventh, fourteenth, seventeenth, and twentieth days, which are said to be critical. There can be no doubt, from the data adduced, that the second week in fever is a critical one, hence cases of fever during the course of the second week should be carefully watched. When we see the importance of knowing accurately the number of days which have elapsed from the commencement of fever, we should, in recording the history of cases, always state in the daily reports the day of the fever, rather than the days of the month, as is frequently done; for it is more important for the judicious treatment of fever, to say that particular symptoms occurred on the sixth, seventh, or eighth day of the fever, than on the sixth, seventh, or eighth day of the month.

Concluding Results.

1. That the annual ratio of deaths from fever in London, have decreased since the commencement of the 18th century. 2. That the susceptibility to be attacked by fever is greatest among individuals under 10 years of age, and from 20 to 30. 3. That the period of life during which the highest ratio of mortality occurs from fever is from 40 to 50. 4. That there is no very apparent difference in regard to one sex being more susceptible to fever than the other. 5. That the annual ratio of deaths by fever is nearly twice as great among the male as the female population. 6. That there is about 1 death for every 15 persons attacked by fever. 7. That the intensity of fever increases with the age of the patient about 34 per cent. every decennial advance in life. 8. That attacks of fever are one-third more intense among males than females. 9. That fever is most prevalent from July to December inclusive. 10. That the intensity of fever is much greater during January, February, March, April, and May, than at any other part of the year. 11. That during those months fever is most prevalent, the temperature and quantity of rain is considerably greater than during those months fever is not so prevalent. 12. That during those months fever is most intense, the temperature and quantity of rain is comparatively low. 13. That medical treatment has a powerful effect in lessening the danger or number of deaths from fever. 14. That early medical treatment shortens the duration of fever. 15. That the mean duration of fever among individuals under 40 is shorter than among those above that period of life. 16. That the general prognosis of fever is favourable, there being 14 chances to 1 that the patient will recover. 17. That the prognosis of fever becomes less favourable as the patient is advanced in life, the intensity of the disease being nearly twice as great at 41 years of age as at 21. 18. That the prognosis of fever is one-third more favourable among females than males. 19. That the prognosis of fever is more favourable from June to December than from January to June. 20. That the prognosis of fever is one-half more favourable among patients who come under medical treatment before the 7th day of the disease, than those who are admitted at a later period. 21. That the prognosis of fever is unfavourable when there are cerebral or thoracic complications.

22. That the second week of fever is the most dangerous. Out of 1000 cases passing through this week 82 died.

The statistical details which I have given in this paper are ablsoutely necessary for the elucidation of the subject. In all statistical investigations the conclusions which may be arrived at are of little or no value unless the materials from which they are deduced, be given. Captain John Graunt, one of the earliest statistical writers in this country, and the author of the work entitled "Natural and Political Observations on the Bills of Mortality in London," published in 1662, strongly inculcates the necessity of giving the materials from which conclusions are drawn. In this work he quaintly compares himself to a school-boy bringing his lesson to his master, the public, so as to examine and ascertain whether his conclusions are correct, and if incorrect to draw their own results. To use his own words, "I have," says he, "taken the pains, and been at the charge of setting out those *tables*, whereby all men may both correct my *positions*, and raise others of their own; for herein I have, like a silly school-boy coming to say my lesson to the world (that peevish and tetchie master) brought a bundle of rods wherewith to be whip'd for every mistake I have committed."—P. 5. Pref. 3d ed. Lond. 1665.

ART. IX.—*Some Account of the Typhus Exanthematicus, as observed in St Bartholomew's Hospital, London, in* 1837–38. By CHARLES WEST, M. D. Graduate in Medicine and Surgery of the University of Berlin.

ON returning in the autumn of the past year from a long residence on the Continent, I found fever abundant throughout the metropolis, and especially prevalent in some of the hospitals. The kindness of Dr Latham has afforded me great opportunities for observing its character, and watching its progress in St Bartholomew's Hospital; and having preserved notes of sixty cases which there came under my observation, I now present their results, thinking that they may perhaps be found not wholly devoid of interest.

In order to convey a better idea of the character of this affection, it will be well to begin by giving the history of a few cases, and afterwards to proceed to a more minute examination of the lesions discovered, symptoms observed, treatment resorted to, and results afforded by all the cases.

CASES.

I. AFFECTION OF THE DIGESTIVE SYSTEM PREDOMINANT.

1. Shivering; pain in head, throat, and epigastrium, with vomiting and constipation; spotted rash; delirium, first at night, then in the day-time; subsultus; death on the twelfth day. Effusion

into the sac of the arachnoid; congestion of the brain and its membranes; congestion of the lungs; mucous membrane of the stomach much congested; mucous membrane of small intestines softened; last two feet of ileum intensely congested; glands of Peyer enlarged; softening and congestion of mucous membrane of colon, and some abrasion of its surface.

Charles Pearce, aged 27, was admitted on the 24th of February 1838. He was a labourer, and a man of intemperate habits, and had suffered from what he called a cold for three weeks; he, however, followed his ordinary occupations up to the 18th, when he had a rigor, and lost his appetite and strength. On the following day he became very hot, had great pain in his head and throat, and was soon afterwards affected with pain in the epigastrium, and vomiting. He had taken no medicine but a few aperient pills before his admission, when his face was flushed, his eyes were suffused, the skin was dry and warm, and the arms and abdomen were covered with a red spotted rash resembling the eruption of measles; intellect clear; voice hoarse and whispering; cough troublesome; expectoration streaked with blood; fauces highly vascular, and superficial ulceration of the posterior part of the pharynx; tongue moist, slightly furred and fissured in the centre; bowels open; pulse 114, and not deficient in power; and loud rhonchus, audible in most parts of the chest. The patient complained of thirst, of severe pain in the head increased by coughing, of pain in the throat, and difficult deglutition, of dull pain beneath the sternum, and of pain upon pressure of the epigastrium. The hair was removed from the scalp; eight ounces of blood were drawn by cupping from between the shoulders; two grains of calomel, and ten of jalap were given; and milk diet was prescribed.

Feb. 25. Bowels open; in other respects as yesterday. Cold was applied to the head, and two grains and a half of mercury and chalk were ordered three times daily.

Feb. 26. Sleepless and delirious at night; skin warm and dry; rash still abundant; voice still hoarse, but coughs very little, and much less rhonchus is heard in the chest; has not vomited since his admission; bowels not open; tongue dry, and fissured, with very little moisture at the edges; pulse 136, full, but easily compressed. The pain in the chest is very slight, that in the epigastrium has disappeared. The medicines were continued; and soup was allowed for food.

Feb. 27. Was very furious in the night, so that it was necessary to confine him in bed; scalp hot; face flushed; eyes suffused; skin perspiring: abdomen full; bowels not open; tongue dry in the centre, moist at the edges; he still talks incoherently, and attempts to get out of bed; when questioned, answers shortly, and denies having any pain. Pulse 136, easily compressed; lungs appear to be healthy as far as auscultation can be performed.

At 11 A. M. the cold applications were continued to the head, and four grains of calomel and ten of jalap were ordered. Six ounces of blood were ordered to be taken by cupping from the temples, and ten minims of laudanum were given immediately after, and ordered to be repeated.

Feb. 28. He had one dose of laudanum last night, and when it was attempted to be repeated at 8 P. M. he refused to swallow it. Was sleepless and delirious in the night, and still continues so; he understands, however, when spoken to, and being desired to put out his tongue, says that he is unable to do so; skin moist; some subsultus; urine passed involuntarily; lips and teeth covered with sordes; pulse 148, very feeble.

10 A. M. Six ounces of wine were ordered; and at 2 P. M had five minims of laudanum, which were to be repeated in an hour, and to continue the wine.

At 8 P. M. he had had no sleep, and was very restless; abdomen full and tympanitic; tracheal rattle, subsultus, frequent and feeble pulse.

A blister was applied to the chest, but he died at 1 A. M., March 1.

Examination of the body eleven hours after death, for the account of which I am indebted to my friend Mr Newton, having myself been unavoidably absent.

External Appearances.—Posterior parts of the trunk of a dark colour, from the subsidence of blood.

Brain.—More fluid than natural in the sac of the arachnoid, and between that membrane and the *pia mater*. The substance of the brain presented more bloody points than natural, but was otherwise healthy.

Chest.—About one ounce of limpid serum was found in the pericardium. The mitral valves were a little thickened; the heart was in other respects healthy. The lungs were much congested posteriorly.

Abdomen.—The mucous membrane of the stomach was intensely congested in a few large patches towards the great extremity of the organ. The lower two feet of the *ileum* were externally of a dark colour; when cut into, the mucous lining was so congested as to present an almost uniform black colour; there were also a few patches of enlarged Peyerian glands. The cæcum, and about one foot of the commencement of the colon, were greatly congested. The congestion, however, was not uniform as in the *ileum*, but intermixed with pale patches. The surface of many of the congested portions appeared to be abraded; the mucous membrane was very soft, and all the intestines were distended by flatus.

The spleen was very soft; other abdominal organs healthy.

2. Pain in chest; shivering; loss of appetite; thirst; pain in head; rash; diarrhœa for ten days; pain in abdomen; slight subsultus; delirium at night; some cough and tenacious expectoration; gradual diminution of the symptoms, and ultimate recovery.

Jane Stock, aged 25, admitted the 6th January 1838, a healthy married woman, who was suckling an infant, and had felt well up to the 1st of January, when she felt some pain in her chest, and on the following day experienced shivering, followed by heat. She had been an out-patient of the hospital for two days.

When admitted, her appearance did not indicate that she was labouring under any serious affection. Her skin was dry; pulse 108, sharp; bowels open; tongue rather furred, and deficient in moisture. She had slight cough; complained of giddiness, weakness, pain in the limbs, back, and chest, thirst, and loss of appetite. Auscultation discovered the respiration to be healthy.

She was ordered soup for food; one grain and a half of mercury and chalk every six hours.

Jan. 7. She was quiet during the night, though she slept but little. To-day a spotted, rose-coloured, measle-like rash appeared on the body and extremities; bowels open several times; tongue moist, slightly furred; pulse 112; she feels rather better.

Jan. 8. Slept better, but complains this morning of pain in her head. Were one to judge by her appearance, one would not suppose that there was much the matter with her; bowels open seven times to-day; abdomen soft, and not painful on pressure; tongue moist, red at the edges; pulse 128.—Discontinue *Hydr. c Creta;* six ounces of wine.

Jan. 9 Had very little sleep in the night, but dosed for a short time towards morning; hands tremulous, with slight subsultus; bowels still relaxed; evacuations liquid and dark-coloured; tongue moist and clean; pulse 128, with some sharpness, but easily compressible.

Arrow-root and broth to be given frequently.—Twelve ounces of wine; *Hydr. c Creta* gr. iiss. *ter die.*

Jan. 10. Slept about two hours in the night; but at other times her mind wandered; rash is more distinct; bowels open five times; evacuations watery and dark; tongue moist and clean; pulse 138, soft and compressible.

It were useless to give an account of her condition each day, since for a week it continued much the same. The countenance was composed, and not indicating suffering. The bowels continued to be purged seven or eight times every day; the abdomen was slightly tender upon pressure; the tongue continued moist and clean throughout; and the pulse beat from 120 to 130 times in a minute, and was very feeble.

A rather troublesome cough came on, attended by a tenacious expectoration; but auscultation detected nothing wrong in the chest, with the exception of slight rhonchus.

Pills of Dover's powder, and mercury with chalk, were given her every six hours, and the aromatic confection was employed. She took twelve ounces of wine, and four ounces of brandy, besides large quantities of broth and sago, or arrow-root, every twenty-four hours: but there were no signs of amendment until January 17th, on which day her bowels were open only thrice, and after that day the diarrhœa did not return. On January 20th the brandy was discontinued. On the following day her pulse beat only 92 times in the minute, and indicated much greater power, while her bowels were purged only once in the day. On the 30th of January she was allowed meat diet, and the wine was diminished to eight ounces; and on the 14th of February she was discharged well.

II.—AFFECTION OF THE NERVOUS SYSTEM PREDOMINANT.

3. Shivering; great prostration of strength; constipation; pain in the epigastrium; rosy spotted rash, intermixed with petechiæ; sleepless delirious nights; constant moaning; delirium in the day-time; involuntary evacuations; subsultus; death in the fourth week. Vascularity of the brain and its membranes; great serous effusion in the ventricles; adhesion of the pleura; intense congestion of the lungs; slight vascularity of the mucous membrane of the stomach, and exceedingly soft spleen.

Thomas Holten, aged 52, was admitted the 1st of March 1838. A carpenter, of intemperate habits formerly, when he was better off in the world, but has of late been destitute of many of the necessaries of life. Has suffered for a long time from a bad cold, but had the first attack of shivering a fortnight since; other febrile symptoms and great weakness followed, and he had kept his bed for some days before his

Admission, when his countenance was distressed; skin covered with a spotted rash like that of measles, but intermixed with petechiæ on the legs; tongue deficient in moisture, clean at the tip and edges, dry and furred in the centre; bowels very constipated; pulse 105, and feeble. His nights are sleepless, and his mind then wanders, but his intellects are clear in the day-time, and he complains of a dull pain at the epigastrium.—Two grains of calomel were ordered every third hour till six grains were taken. *Diæt. Jusc.*

March 2. He was quiet in the night, but did not sleep. His appearance, however, to-day is improved; the petechiæ are less bright, and the pulse has increased in power, and is 120; the tongue, too, has become moister at the edges, but the bowels have not been opened.—Half an ounce of castor-oil; calomel, gr. ij. *3tiis horis ad 3tiam vicem.*

March 3. He was very restless, and light headach in the night. The petechiæ, however, continue fading, but he lies on his side, constantly moaning. The bowels have been open once; evacuations liquid, and of a brown colour; tongue clammy, furred, with very slight moisture at the edges; pulse 130; complains of pain, though by no means severe, in the epigastrium.—Six ounces of wine; *Hydr. c. Creta* gr. iiss. *ter in die.*

March 4. Passed another sleepless night; skin hot; conjunctiva suffused; pulse 120, with increased power; bowels open: tongue as yesterday.

The wine was suspended till the following morning, and was then resumed. He was very delirious during the night, attempting to get out of bed; and on

March 5. His skin generally was cool, though his head was rather hot; eyes blood-shot; mind wandering; pulse 120, much more feeble than yesterday; tongue moister, and less furred; bowels not open. He complains of pain everywhere, but especially in the chest; auscultation, however, detects no morbid sound.

Cold was applied to the shaven scalp; the wine was increased to twelve ounces: and ten minims of laudanum were given immediately, and ordered to be repeated after four hours, if requisite.

March 6. After taking the first dose of laudanum he fell asleep, and continued sleeping until 3 A. M., when he became restless, delirious, and attempted to get out of bed. He is now (10 A. M.) lying on his back in a state of muttering delirium, having had two involuntary evacuations, his urine also passing from him unconsciously; his pulse frequent, feeble, and irregular; tongue still moist at the edges.

A pint and a half of urine was drawn off by the catheter. He was ordered four ounces of brandy, and to have wine, strong broth, or brandy, every quarter of an hour.

March 7. The night was again passed in a state of delirium, and he walked about the ward in the night. His mind is still wandering, but his aspect is improved, and his pulse, though feeble, is reduced in frequency to about 90; he has passed one evacuation in bed, and his tongue is dry and loaded.

March 8. Yesterday evening he had five minims of the tincture of opium, but it produced no effect, for he was delirious throughout the night. Lies now on his back in a state of muttering delirium; the skin has assumed a dusky hue; there is considerable tremor of the hands, and subsultus. He has passed both fæces and urine in bed, but he is able to help himself to drink, and his pulse is as yesterday; there is too some moisture at the edges of the tongue.

In the afternoon his powers had sunk still more, and he died at 2 A. M., on the 9th of March.

Examination of the body eleven hours after death.

The *Brain.* The *dura mater* very vascular; some serous effusion beneath it, and also a few coagula of blood; arachnoid much congested; effusion between it and *pia mater*, as also at the base of the brain. The substance of the brain much as usual, but the ventricles were exceedingly distended with limpid serum, and when emptied did not collapse; the *velum lucidum* was torn, and the *foramen* of Monro would have admitted a goose quill.

Chest.—The left lung was everywhere adherent to the *parietes* of the chest; the right somewhat less so; the adhesions were old and firm. Both lungs were much congested, and their substance perfectly gorged with bloody serous fluid.

Abdomen.—The mucous membrane of the stomach hard and rather vascular; intestines healthy; spleen remarkably soft, and firmly adherent to the posterior abdominal parietes.

4. Loss of appetite, shivering, pain in the head, leipothymia, sleeplessness, constipation, pain in epigastrium, diarrhœa, subsultus, general convulsions, delirium, coma, death on the tenth day.

Elizabeth Gee, aged 49, admitted the 31st of January 1838. Had been doing the duties of a nurse in the hospital; on December 29, 1837, was seized with the premonitory symptoms of fever. Had an emetic, and afterwards saline medicine. Remained as a patient until January 17th, when she left the hospital well, though rather weak. Two days after leaving the hospital she lost her appetite, and began to feel ill, but had no shivering until January 26th, when she had a severe rigor, followed by pain in the head and febrile symptoms, and she had also several fainting fits. Her bowels had been very costive, but she had got them to act by means of purgative medicines, and also applied a leech to her forehead the day before her

Admission.—Her countenance was then pale and anxious; the skin hot and dry, but without any rash; tongue deficient in moisture; coated with white fur; bowels open thrice; pulse 96 hard, but not strong; she is sleepless at night; suffers much from thirst; complains of pain in her head, especially in the right temple; of pain in all her limbs, and in the abdomen; the pain there being greatly increased on pressure.—*Hydrargyri c. Creta* gr. iss. *4tâ quâque horâ.* Soup for diet.

Feb. 1. Passed a restless night, though she thinks it was less so than the night before; tongue white and clammy; bowels purged six times in the night; evacuations reported watery, and of a green colour; pulse 120; she complains of great pain in the head, and of pain in, and tenderness of, the abdomen.

She was ordered to have six leeches applied to the temples; twelve ounces of wine; and to take every fourth hour five grains of the quicksilver and chalk powder.

Feb. 2. Night sleepless; bowels purged much in the night; evacuations reported green and watery; tongue clammy; there is so much subsultus as to prevent counting the pulse.

She had six ounces of brandy ordered instead of the wine, was to have broth or brandy every quarter of an hour; six drops of laudanum were given her in the morning at 9 A. M., and the subsultus having been somewhat relieved by it, six drops more were given at 7 P. M., which quieted her, and she obtained a little sleep.

Feb. 3. Countenance exceedingly anxious; pulse very feeble, but scarcely to be counted from the severity of the subsultus; the intellects are clear, and have been throughout; occasional and very violent convulsions of the whole frame occur, during which she seems to suffer much; bowels not open; tongue clammy and brown.

She was ordered six minims of the tincture of opium at 11 A. M., which, appearing to relieve the convulsions and subsultus, were repeated at 3 P. M., and ten minims more were given at 9 P. M., after which she became quiet, and continued so through the night. The nurse, whose duty it was to attend upon her at night, appears to have neglected her, and in the morning she was evidently dying. An unsuccessful attempt was made to rally her by sinapisms, &c. but she died at 5 P. M., on the 4th of February.

Examination of the body could not be obtained.

5. Shivering, rosy-spotted rash, intermixed with petechiæ, great

pain in head, despondency, restlessness, delirium at night, coma, return of consciousness, ultimate recovery.

William Andrews, aged 27, admitted the 17th February 1838. He had been subjected to great fatigue and anxiety in attending upon his brother, who had died of fever about ten days before. For some days he had felt himself ailing, but the first attack of rigor occurred on February 12, and he had since become worse every day, and had suffered much from pain in the head.

When admitted his countenance was anxious, and eyes were heavy; the skin was covered by a very abundant rash resembling the eruption of measles, which on the hands and arms was intermixed with petechiæ; bowels open the previous day; tongue clammy and coated with white fur; pulse 92, full. He complains much of pain in the head, and is very desponding, saying that he shall not recover.

Milk diet; six leeches were ordered to be applied to the temples, and two grains and a-half of the quicksilver and chalk powder three times daily.

Feb. 18. He slept quietly during the latter part of the night, his headach having been much relieved by the leeches; bowels not open; tongue drier; pulse 102, full, but compressible; on auscultating him respiration is found healthy.

Soup for food; cold applications to the head; and half an ounce of castor oil was ordered immediately.

Feb. 19. His bowels were opened twice by the castor oil; evacuations reported solid and dark-coloured; epistaxis to about three ounces occurred in the evening, and he slept well during the former part of last night. The rash and petechiæ are fading; pulse 102, of the same character as yesterday; tongue dry, brown at the tip, white, and slightly moist at the edges; he has slight cough, but the respiration is natural.

Two grains of calomel were ordered at bed-time, and some castor oil in the morning.

Feb. 20. Yesterday evening a little wine was given him, but producing much heat of skin and flushing of the face, was not repeated; he passed the night without sleep. To-day his bowels have been twice open; evacuations copious, liquid, and of a greenish colour; tongue dry, red at the centre, moist, and white at the edges; pulse 105. He says that he is better since his bowels were opened.

His condition remained much the same for the two following days. In the night of February 22d he was light headed, and had scarcely any sleep, but the next morning he took some milk, and had some castor oil; nor was any thing unnatural observed in his manner. At 1 o'clock P. M. I saw him; he was then lying on his back speechless; his mouth firmly closed; eyes shut; forehead bedewed with cold perspiration, and extremities becoming cold; the pulse was 90 and compressible. Sinapisms were applied to the feet, and a blister was put on the back of the neck; soon afterwards he passed a very copious evacuation in bed, and consciousnesss somewhat returned. Four leeches were applied to the temples, and when seen at 8 P. M. he had much recovered from the coma, and complained of pain in the head, though he said that it was rather better since the application of the leeches; his pulse had risen much in power, but the head was not hot.

He was ordered immediately five grains of calomel, which produced eight or nine evacuations in the night, during which his mind did not at all wander; and on February 24th his aspect had greatly improved; he replied readily to questions; his pulse was 70, and with considerable power; tongue moist and furred; and though there was still some pain in the head, it had greatly diminished.

From this time he daily improved, and had no other medicine than an occasional dose of castor oil.

He was discharged well March 21st 1838.

6. Shivering; severe pain in the head; rosy spotted-rash; constipation; tympanitic abdomen; great debility and very rapid pulse; furious delirium for forty-eight hours; afterwards progressive, though slow convalescence.

Isaac Ritches, aged 32, admitted the 15th of March 1838, a maker of velvet, of temperate habits, and had always enjoyed good health up to the 8th of March, on which day he was seized with shivering, pain in the head, and the ordinary symptoms of fever, which soon became severe; and on the night before he came to the hospital, having suffered very much from pain in the head, he applied a blister to the back of his neck, and felt somewhat relieved at the time of his

Admission, when his countenance was anxious; skin covered with a rash like that of measles (which he says appeared March 11th;) abdomen full and tympanitic; bowels not open for three days; tongue moist at the edges, rather dry in the middle; pulse 140, but not very feeble; intellects clear, and the patient's complaints relate principally to the head. Auscultation indicated nothing morbid in the lungs.

Soup for food; two grains of calomel; castor oil in the morning.

March 16th. Last night he refused to take the pill, but slept well in the night, and the bowels were open this morning without medicine; evacuations fæcal, rather light-coloured; the rash is still bright; the eyes are much suffused; but the tongue is moist and almost perfectly clean; pulse 146, but not very feeble, and the patient feels himself better. He was allowed six ounces of wine.

March 17. Had a tolerably good night; bowels open once; evacuations reported liquid and dark-coloured; tongue moist and slightly furred; pulse 130, undulating, very compressible; complains of no pain, but of great weakness. The wine was increased to ten ounces.

March 18. Yesterday evening at 9 o'clock he became delirious, and so violent that it was necessary to confine him in bed. To-day, however, at 10 A. M. he is perfectly sensible; denies having any pain in the head, and says that the cold lotion which had been applied to the scalp is very unpleasant to him. There is no great heat of the skin in general nor of the head, but his eyes are much suffused; pulse 130, not feeble; bowels not open; and tongue perfectly dry.

The wine had been discontinued since yesterday evening, and as he appeared rather disposed to sleep, six minims of laudanum were ordered; but his calm continued but for a short time, and, being delirious when seen at 2 P. M., he was ordered to be cupped on the temples to six ounces, which, however, was followed by but very slight improvement.

At 8 P. M. He was very noisy and violent, and ten minims of laudanum were ordered immediately, and to be repeated in the course of three hours if requisite.

March 19. Two doses of laudanum were given him last night, but he had no sleep, and was very noisy and violent during the greater part of the night. To-day he still continues so; sometimes struggles violently to get loose, talks, shouts, and sings, and occasionally utters a cry as though in great pain; sometimes when spoken to he answers, and says that he has no pain in the head; but his head is hot; the eyes are much suffused, pupils contracted; the pulse is much less frequent, and indicates considerable power. The bowels are not open, but he has passed a large quantity of urine in bed, and the tongue is perfectly dry.

Ten leeches were at once applied to the temples, and produced slight relief. When seen at 4 P. M. eight ounces of blood were directed to be drawn from the temples by cupping, and he was given five grains of calomel.

Immediately after the cupping he became quieter and fell asleep. Three hours afterwards his bowels not having acted, a purgative glyster was given him, which produced a copious evacuation. After it he again fell asleep, and slept during the greater part of the night.

March 20. He awoke this morning quite sensible; has been weeping, and is still very low-spirited; his skin and head are cool; but the eyes are blood-shot; pulse 128, not deficient in power; tongue moist and clean; his manner is natural; he says that he has no pain, and seems much inclined to sleep. Four ounces of blood were ordered to be taken by cupping from the left temple.

The following day he was still better, and it would be a mere waste of time to go through the details of his convalescence, which was protracted, and during which the only circumstances of note were, that, on the 26th of March, his bowels became rather relaxed, and continued so for three or four days; but on being allowed four ounces of wine daily, and having a pill every night of Dover's powder, and mercury with chalk, he became better. His pulse continued very frequent long after every symptom, except of weakness, had disappeared; I found it 120 on the 10th of April. He was likewise somewhat troubled by excoriations of the scrotum, which, however soon healed, and he was discharged well April 20th.

III. AFFECTION OF THE RESPIRATORY SYSTEM PREDOMINANT.

7. Shivering; constipation; spotted rash; hurried respiration; tremor of hands; crepitation in both lungs; involuntary evacua-

tions; no healthy respiration in either lung; death about the tenth day.

Vascularity of brain and its membranes; serous effusion into the pleura; lungs coated with lymph; intense congestion of the substance of both lungs; mucous membrane of the stomach softened, congested, ulcerated; enlargement of the *glandulæ solitariæ;* and congestion of the small intestines.

William Salter, aged 20, admitted the 24th February 1838, a gardener out of work, had come up to London a fortnight before his admission, had since then endured great hardships, not having slept in a bed since he came to London, nor had for the last week other food than bread and water. On the 8th of February he caught cold from sleeping out of doors; a week ago he became worse, and had a shivering fit, and had continued to get worse up to the time of his

Admission, when his skin was covered with a copious measly rash; hands tremulous; respiration hurried; manner quick, but intellects clear; tongue furred, red at the tip, and becoming dry; bowels not open for the last four days. On examining the chest by auscultation the respiration was found to be good.—Half an ounce of castor oil. *Diæta Lactis.*

Feb. 25. He lay quiet throughout the night, and had some sleep towards morning; his countenance is flushed; head hot; and respiration more hurried; tongue perfectly dry; bowels open twice, evacuations copious, liquid, and fæcal; pulse 120, but with more power than it had yesterday. Some crepitation is heard through both lungs, but intermixed with very good respiration.

Cold applications were made to the shaven scalp; and two grains and a half of mercury and chalk were directed to be given every fourth hour.

Feb. 26. Sleepless, delirious, and talking in the night; countenance flushed; lips livid; skin dusky; respiration more hurried; tongue perfectly dry; bowels open once, evacuations light-coloured; pulse very frequent, feeble, and difficult to be counted; and more crepitation about the base of the right lung.

C. C. ad ℥ vi. infra scap.; Vini ℥ vi. Diæt. Jusc.

Feb. 27. He had an ounce of wine after being cupped, but it was not repeated during the night, which he passed quietly though without sleep; tongue dry as yesterday; bowels open twice, one evacuation passed in bed, the other not so, which latter was watery and greenish; pulse about 120, very feeble; he takes broth and wine with great avidity. Auscultation detects much rhonchus and crepitation in both lungs.

Four hours later (half past 3 P. M.), he was breathing with extreme difficulty; his pulse had become much more frequent, and no healthy respiration was heard in either lung. A blister was applied to the chest, but he died the same day at 6 P. M.

Examination of the body twenty-four hours after death.

External appearances.—Body not much emaciated; general dusky hue of the skin, and some livid spots on the body and extremities.

Brain.—The membranes were highly vascular and very tough; the cortical substance of the brain was darker than usual, with a great number of bloody points in the medullary substance, and an unusual quantity of fluid in the ventricles.

Chest.—Three pints of bloody fluid were contained within the cavity of the *pleuræ*, there being a larger quantity of it on the right than on the left side; the left lung was collapsed, the right not. The *pleura* covering the lower lobe of each lung was coated with lymph. On dividing the *trachea* much red frothy fluid escaped; the lining membrane of the larynx, trachea, and larger *bronchi* was intensely red, and rough to the touch, as was also, though in a less degree, that of the smaller *bronchi*. Both lungs were dark, and more or less solid to the touch, and infiltrated with a red serous fluid, while the edge of their lower lobes was fringed with emphysema. The upper part of the superior lobe of the right lung admitted air; its lower part was dark, perfectly solid, and sank in water; the lower lobe, though very dark and much gorged with fluid, floated. The left lung was rather less affected, the upper lobe floating; but a considerable portion of the lower lobe sank in water. The *pericardium* contained a considerable quantity of transparent serum; the right cavities of the heart were full of blood and much dilated, the left empty and in a healthy state.

Abdomen.—The *peritoneum* was healthy, its cavity contained no fluid; the spleen large but healthy; the liver healthy, except an ecchy mosis on about an inch of the convex surface of the right lobe. The kidneys were healthy.

The œsophagus was healthy; the mucous membrane of the stomach was soft, and very vascular; a great number of small excavated ulcers, most of them without any immediately surrounding vascularity, were observed along its *rugæ*, and congregated especially towards the great end of the stomach.

There was considerable vascularity of the small intestines, not uniform, but in patches, and the solitary glands were much enlarged. In the large intestine, and especially about the ileo-cæcal valve, there was much vascularity, and an appearance closely resembling that of the rash on the surface of the body.

IV. INSTANCE OF FEVER WITH NON-AFFECTION OF THE CIRCULATING SYSTEM.

8. Shivering; pains in the limbs; deafness; rash, with petechial spots; copious glairy expectoration; pulse almost undisturbed throughout, and ultimate and rapid recovery.

Henry Taylor, aged 22, admitted the 29th of March 1838, is a porter, and a man of temperate habits, and having had good health up to the 16th of March, when he was seized with shivering, followed by heat; pains in all his limbs, and other febrile symptoms, but his intellects are clear, and his rest at night is undisturbed.

On his admission his appearance was rather emaciated; countenance anxious and depressed; the skin of the trunk and upper extremities covered by a very abundant spotted rash, the spots were more petechial than is usual, and but few of them disappeared under pressure; bowels open from medicine, but have generally been constipated; tongue moist, clean at the edges, but much furred at the centre; pulse 66, small; respiration healthy; he is rather deaf, but his intellects are unaffected, and he complains of some pain in the abdomen.

He was allowed soup for diet, was ordered the tepid bath, and the saline medicine every six hours; to take at bed-time two grains of calomel, and some castor-oil in the morning.

March 30. Slept well in the night; to-day the eruption is less vivid; bowels open twice, evacuations fæcal; tongue less furred, red, and moist at the edges; pulse 70, compressible; considers himself better.

The two grains of calomel at bed-time were repeated, and castor oil was ordered to be given in the morning.

March 31. Had a good night; to-day his aspect is much improved, and the rash is fading; bowels open copiously; tongue cleaner; pulse 60; he expectorates copiously a thin glairy mucus, but has no cough nor pain in the chest, and auscultation detects nothing morbid. Two grains and a half of mercury with chalk were ordered to be given twice a day.

April 2. Slept well; bowels open yesterday; tongue moist and clean; pulse 60; expectorates copiously.

April 5. Tongue moist, nearly clean; bowels open; sleeps well; is free from all uneasiness, and appetite has returned.

He improved uninterruptedly; the rash had quite disappeared on the 7th, and he was discharged well on the 14th of April.

It would have been easy to have detailed many other cases, but these will perhaps be sufficient to show the more striking features of this affection. I shall now proceed to an examination of the appearances found after death, and here my observations refer to ten cases, a number which, though too small for one thence to draw any very exact conclusions, may still serve to convey some idea of the lesions which this fever usually produces.

I. *External appearances.*—There was no remarkable degree of emaciation in any case, except one, that of a convalescent from fever, who sunk under an attack of erysipelas of the face, and died on the forty-third day from the attack of rigor.

In all instances, the dependent parts of the body were more or less livid from the subsidence of blood, but this appearance was by no means confined to such parts,—the arms and legs also frequently showing livid patches, and in one or two cases in which the disease had run its course rapidly, the whole body presented a dusky hue. The eruption did not disappear after death, but in some cases, the spots remained of the same character as during life, though usually they assumed a somewhat darker colour. On cutting through the skin extravasation of blood into the subcutaneous cellular tissue was often found: I have observed it most frequently in the cellular tissue surrounding the *rectus abdominis* muscle; that covering the pectoral muscles was also frequently its seat, but I have neglected to note the exact frequency of its occurrence.

II. *State of the Encephalon.*—The membranes of the brain were more or less congested in nine cases,—twice it affected the *dura mater*, but in the other instances was confined to the arachnoid and *pia mater*. Serous effusion into the cavity of the arachnoid, or into the sub-arachnoid cellular tissue, was found in six cases; in one of these (Case 3.) this effusion was very great, and there was also considerable effusion at the base of the brain, into the lateral ventricles. Slight opacity of the arachnoid was found in two instances, in one of which there were also a few apparently old deposits of lymph upon its surface; and in two other cases, a few small coagula of blood were found upon the arachnoid, covering the cerebral convolutions.

The cerebral substance was found, in most instances, infiltrated with serum in various degrees, the gray matter was usually rather darker than natural, and the white substance presented an unusual number of bloody points. Once I observed some softening of the left lobe of the cerebellum, and of the under surface of the left anterior lobe of the cerebrum, the olfactory nerve of that side being converted into a yellowish gelatinous substance.

III. *State of the thoracic viscera.*—The respiratory organs were only once found in a sound condition, and that one case we can scarcely reckon with the others, it being that of the patient who died on the forty-third day.

In four cases there existed adhesions, none of which, however, appeared to be recent. Between the costal and pulmonic pleuræ, slight effusion into the cavity of the pleuræ was far from uncommon. Once (Case 7.) this effusion was very considerable, and there was considerable deposition of lymph on the pulmonic pleuræ, and on another occasion I found extreme vascularity of those membranes.

The lining membrane of the larynx, trachea, and bronchi was exceedingly congested in five cases; at the same time there was evident hypertrophy of its tissue, and in two of these cases there was some dilatation of the *bronchi.* This colour of the air-passages, though without doubt in great measure the consequence of chronic *bronchitis*, yet was in all these cases so bright, as evidently to show that it must be partly attributed to some recent cause. Once only I observed ulceration of the air-passages, and in that instance one small ulcer was situated at the bifurcation of the *bronchi*, though neither in the digestive canal nor in any other part of the respiratory passages were there any traces of ulceration.

On dividing the trachea and bronchi, a more or less considerable quantity of a red muco-serous fluid intermixed with bubbles of air escaped, and eight times the same fluid was found infiltrated in the substance of the lungs. In these cases the lungs were of a dark bluish-red colour, much congested, parts of them were impervious to air, and sank in water, sometimes, though not generally, their texture was softened, and emphysema frequently fringed their lower lobes. This condition of the lungs was confined in six instances to their lower lobes, twice the upper lobes also were affected, but in no instance were the upper lobes alone the seat of this morbid condition.

It is so common a practice to consider this condition of the lungs in fever as the result of pneumonia, that it appears to me to be of considerable importance to point out the difference between this state, and that of lungs which have suffered from ordinary inflammation; and here my limited observations coincide, as far as they extend, with those of M. Louis.

This condition was generally confined to the lower lobes of the lungs, and in most instances to their posterior part, and it was in no case found exclusively occupying the upper part of the lungs. Its colour differs greatly from that of hepatized lung. Its texture in by far the majority of cases was not softened, (in six out of eight,) and the fluid which exuded from the cut lung differed greatly from that furnished by dividing hepatized lung. I shall hereafter speak of the difference between the symptoms of this affection and those of pneumonia, and will now merely quote a too-often forgotten observation of the famous Hufeland, that "not every local affection which occurs in fever is inflammatory, though out of each inflammation may arise."

The pericardium usually contained a little serous fluid, but the heart presented no peculiar morbid appearance.

IV. *State of the abdominal viscera.*—Thrice there was no morbid appearance whatever in the whole intestinal canal; in two other instances, I found merely some hardness and old vascularity of the mucous membrane of the stomach, such as is met with in drunkards; in the other five cases the appearances were as follow.

The mucous membrane of the stomach was congested and softened in three cases; in one of these, in which the intestines were healthy, the mucous membrane of the stomach was of an universal rose tint, thickened and softened, and at its cardiac orifice were some extensive and dark ecchymoses. In another case, (Case 7,) I noticed ulceration of the stomach; in no instance, however, did the œsophagus exhibit any deviation from a state of health.

In all the five cases there was increased vascularity of the intestinal canal, extreme in one instance, (Case 1.) and accompanied in another case by slight extravasation, usually, however, it was not intense, was in patches corresponding to the situation of the Peyerian glands, or near the ilio-cæcal valve. Twice I recollect to have seen it in spots almost exactly resembling the appearance of the rash upon the skin. Once the glands of Peyer appeared enlarged, and twice there was very considerable enlargement of the solitary glands, but I never found them ulcerated. Once (Case 1.) the mucous membrane of the cæcum was very much softened and congested, and there was slight abrasion of the surface of some of the congested patches.

The liver presented no appearance worthy of note, the gall-bladder was generally full of thick dark-coloured bile; once I found it empty, and quite contracted; the stomach containing in that instance a large quantity of dark unhealthy-looking bile; once too I found the gall-bladder to contain 164 gall stones.

The spleen is the only other organ in which I detected any morbid appearance. It was enlarged and softened in six cases; in the remaining ones it was healthy. In the cases in which it was enlarged this increase of size was more than double its natural volume, and its texture was so soft, that it was often lacerated in attempts to remove it from the abdomen, though I never found it burst on opening the abdominal cavity; a condition, according to Horn (Ueber die Heilung des Nervenfiebers, &c. p. 89,) by no means unusual in the *typhus bellicus* of 1813. On making a section of any one of these softened spleens, its contents were found of the colour and consistence of the lees of red wine, but becoming brighter by exposure to the air.

Having thus, as far as I am able, described the *post mortem* appearances which came under my notice, I will next proceed to investigate in a similar manner the symptoms which presented themselves in the sixty cases of which I have preserved a record.

I.—OF SYMPTOMS DEPENDENT ON DISORDER OF THE DIGESTIVE SYSTEM.

The action of the bowels was not disturbed in the great majority of cases; in fact, the administration of mild laxatives was necessary in most instances, in order to obtain an evacuation once in forty-eight hours, and in some of the most severe cases the bowels were very constipated. Diarrhœa occurred only in ten of these sixty cases, in three of which the patients died, and it was only four times that it lasted for longer than forty-eight or sixty hours; two of the instances in which the diarrhœa continued for several days, in the one for eight, in the other for seventeen days, terminated fatally. The details of the third (Case 2.) I have given, and in the fourth case it lasted for nine days from the commencement of the fever, but the patient ultimately recovered.

The evacuations, whether frequent or few, usually presented the same character, watery yellow in colour, sometimes mixed with mucus, but usually free from it; occasionally greenish or dark-brown, and in some instances healthy in character, and of a natural consistence. I never but once found blood in the evacuations, and in that instance the discharge might almost be regarded as critical, or at any rate each bloody evacuation was followed by an amelioration in the patient's condition, and he ultimately recovered.

Pain in the abdomen was met with much more frequently, namely, in thirty cases, but in nine instances only was it severe; in eight of the cases in which pain was felt in the abdomen, diarrhœa was also present; in thirteen the bowels were constipated, and in the remaining eight cases their action was nowise affected. This pain existed from the commencement of the fever in four cases only; in most it came on in the second week, lasting usually about four days, though once it continued for fifteen days, and in three other instances from six to eight days. It was usually complained of more as a dull pain or sense of weight and discomfort, than as being very acute; it was in all cases aggravated by pressure, in general seemed to be seated in the epigastric region, though in a few cases it occupied the right iliac fossa, or followed the course of the colon.

Eleven times there was some fulness and tympanitic distension of the abdomen, accompanied by pain in every case but one; and in that one the patient was delirious when admitted, and though his bowels were not disturbed, he suffered from hiccough for seven days, at the end of which time he died. In seven cases diarrhœa was co-existent with the tympanitis, while in three others, on the contrary, the bowels were constipated.

In thirteen cases the bowels were constipated, and this condition of them existed more especially in those cases in which the patients had suffered much before their admission from hunger, want, and wretchedness; as instances of this I may refer to Cases 3 and 7.

At the first attack of the fever patients frequently complained of nausea, but vomiting during the progress of the disease was of very rare occurrence; it was said to have taken place in case one, before the patient was admitted, but it did not occur afterwards, and in the two other instances in which it was observed, it seemed to arise from the patient's dislike to wine, and ceased on brandy being substituted for it. I have already mentioned that hiccough occurred in one patient; it came on upon the twelfth day of the fever, and continued for seven days, when the disease terminated fatally.

With regard to the state of the tongue, I may observe that bore no relation to the condition of the intestines. Of this Case 2. is a striking instance, in which, though the patient suffered from severe and protracted diarrhœa, the condition of the tongue scarcely deviated from a state of health. It seemed rather to change in accordance with alterations in the state of the sensorium, becoming dry when the cerebral affection was severe, (Case 6.) while the reappearance of moisture indicated that delirium was abated, that the patient had passed a quieter night, or that pain in the head was diminished. Eight times the tongue continued moist through the whole course of the fever, but it usually seemed to pass through certain phases nearly as follows. When a person was first attacked by fever, the natural moisture of the tongue became diminished, and a yellowish white fur gradually covered its surface, leaving, however, in general, the tip and edges clean and moister. Thus it continued for about the first week or ten days, but as the cerebral symptoms became more marked the white fur turned brown, the tip and edges of the tongue still continuing red, the whole tongue, before large and flabby, became dryer and shrank in size ; it next lost every vestige of moisture, put on a glazed appearance, was tremulous, protruded with difficulty, and instantly retracted into the mouth ; or it cracked, became covered with a thick dark-brown coat of sordes, and adhered to the roof of the mouth, or to the gums and teeth, likewise thickly coated with sordes, so firmly that the patient was not able to put it out. If now the disease took a favourable turn, moisture would once more appear at the tip and edges of the tongue, and it would again pass in inverted order through the changes I have just described, as the patient progressed towards recovery. Once I observed considerable hemorrhage take place from the gums and lips, and the whole tongue became encrusted with blood ; a second time I saw the tip of the tongue become sore, cracked, and bleeding ; and on a third occasion the edges of the tongue ulcerated ; but unusually protracted convalescence was the only circumstance in which these differed from other cases.

On account of the difficulty of examining the throat in severe cases where the patients are unable to sit up in bed, I think it very possible that affections of the pharynx may sometimes have escaped my notice. Patients frequently complained of their throats, speaking at the same time in a hoarse and whispering voice, the cause of whose sufferings consisted entirely in the dryness of the throat and fauces. I have, however, noticed six cases in which there was some redness and swelling of the pharynx, together with slight ulceration in one case, (Case 1.) which terminated fatally.

II. SYMPTOMS DEPENDENT ON DISORDER OF THE NERVOUS

SYSTEM, which form a class of at least equal importance with the preceding; indeed I am inclined to regard them as the most important of all, for those cases were always the mildest in which the cerebral functions were least disturbed; death never occurred unpreceded by delirium, coma, or convulsions; and an examination of the morbid appearances has shown us that no organ presented lesions so frequently as did the encephalon, while not a few cases presented, during their whole course, no symptoms but such as were referable to disorder of the nervous system.

One of the symptoms most general in its occurrence, and which at the same time was one of the earliest experienced, was pain in the head. I have found it in all cases in which patients were admitted before the occurrence of stupor or delirium, and, as far as I could learn, it came on either immediately before, or closely following the first attack of shivering; it was frequently preceded by giddiness, and was more a sense of heaviness, tightness of the head, and aching above the eyes than very violent pain; in fact, it was only in twelve cases that the pain was what could be termed very severe. It usually continued for the first week or ten days, ceasing as pain in the abdomen appeared, or as the delirium developed itself, or that state of stupor and indifference came on, which was the frequent precursor of delirium. The anxiety before depicted in the countenance of the patient would now give place to a stupid aspect, the feelings, before painfully exaggerated, were now blunted, all the senses seemed to be duller, some said that every thing appeared to them enveloped in a haze; many were actually deaf, and still more, paid no attention to a question when first asked them, but waited for it to be repeated, and then after pausing for a minute gave a hasty and laconic reply, as though annoyed at being disturbed by the inquiries of the physician. They appeared to desire nothing, but to be displeased when the attendants roused them, in order to give them food or medicine; frequently the calls of nature were unattended to, and they would pass their urine or fæces in the bed. Twice only I have seen complete coma supervene upon this condition. Usually, the nights before disturbed by dreams, were now passed by the patients nearly without repose, and in a state of delirium, or if they dosed at all by incessant talking in their sleep, they showed how unsound and unrefreshing were their slumbers. When day returned the delirium abated, and they either became quiet, or lay moaning with tremulous lips, twitchings of the muscles of the face, and subsultus of the tendons of the fore-arm. As, however, the disease advanced, delirium became fixed upon them through the day; occasionally they were furious, and, more particularly at night, required to be confined in bed by force; but usually they lay in a state of muttering delirium, rambling from one occurrence in their past life to another, no one idea seeming to engross their minds, and very rarely alluding to their illness or complaining of their sufferings. Usually it was still possible to obtain answers to questions when often repeated, or the patient would if desired endeavour to put out his tongue, but this was not invariably the case, and in one instance (Case 6,) the delirium differed widely from that which I have just described; loud and furious, and occasionally interrupted by most piercing cries, it resembled the delirium accompanying acute *meningitis*.

There was more or less delirium in thirty-three cases, including all the fatal ones; in twenty the patients were delirious only at night; but in thirteen, eight of which terminated fatally, delirium continued through the day. In those cases in which the delirium was confined to the night, it did not assume a violent character; and as the morning dawned, patients would frequently get a little sleep; when, however, it continued through the day, it generally became violent as evening approached, and, unless confined to bed by force, patients would rise and walk about the wards. It was not until the second week, and generally towards its close, or from the tenth to the twelfth day, that delirium occurred, and lasted on the average for seven days. I never noticed it begin before the sixth, nor after the twentieth day; nor did I ever observe it continue for more than ten days; while in six instances it affected the patient during only one night. The degree in which the powers of the sensorium were affected was one of the most important points to be taken into consideration in estimating the probability of a patient's recovery. The case might present the most alarming symptoms, the prostration of strength might be extreme, and the pulse so feeble as scarcely to be counted, but still one had good ground to hope for his recovery, if the delirium were not furious; if it affected him only at night, sensibility returning during the day; and, above all, if in the course of twenty-four hours he spent one or two hours in sleep, for that was always followed by a most marked amendment in every respect.

Spasmodic action of the muscles was very frequently observed. Its slightest form, tremulousness of the tongue, was not absent in any case in which the symptoms were at all severe. Slight tremor of the hands, or twitchings of the muscles of the face, were also very frequent, and often occurred when the intellects were quite unaffected, but in the fifteen cases in which there was what could be called subsultus of the tendons of the fore-arm, delirium also was frequent. This subsultus in all cases but one (Case 3, in which it first appeared within twenty-four hours of the patient's death,) began at the same time with the delirium, and lasted for about as long, affecting the muscles of the face, hands, and fore-arms, and I never but once (Case 4.) observed general convulsions of all the voluntary muscles.

With regard to the state of the bodily powers in this affection, great and early prostration of strength was one of its grand characteristics. Though most of the patients were admitted within ten days from the commencement of the attack, it was necessary to carry many of them up stairs, and undress them. During the past winter it was a melancholy sight to behold young men, of Herculean mould, carried up into the ward by others, undressed by the nurses, and when placed in bed, scarcely able to turn from one side to the other, though syncope occurred only twice, in one of which instances (Case 4.) the disease proved fatal. In twenty cases, patients passed their urine and feces in bed, and this, doubtless, was in part owing to the great prostration of strength, though, in all probability, still more the result of that condition of the sensorium giving rise to the state of stupor which I have already described; for though the sense of weakness was often very distressing from the commencement of the disease, yet patients did not begin to pass their evacuations involuntarily until the middle or end of the second week, at which time the sensorial affection generally developed itself with greater severity.

In many cases patients were much troubled by noises and ringing in their ears, a disagreeable sensation which often continued for a considerable time after convalescence. Deafness was far from unusual, and generally appeared at the same time with the other sensorial symptoms, though it certainly added nothing to the danger of a case, and might almost be looked upon as a favourable symptom.

In two patients who were convalescent, violent pains in the ear, followed by purulent discharge from the external auditory canal, took place.

The sight became affected as well as the hearing, and complaints of motes flitting before the eyes were very frequent. Three or four times patients have complained that all objects appeared enveloped in a haze, but they do not appear ever to have been troubled by spectral illusions. The appearance of the eye itself varied in the different stages of the disease, at first, heavy and suffused, as in a person labouring under catarrh, it brightened, and had a peculiar wildness in its expression as the disease advanced; in particular, I remember the case of a girl who had a rather severe attack of fever, but ultimately recovered, in whom the eye retained a brightness and wildness almost unearthly for many days after all dangerous symptoms had passed away. In other cases the conjunctiva became red, and the eyes blood-shot, while not unfrequently the pupils would remain for many days firmly contracted, and not changing under different degrees of light; and the eye became duller, and its expression more vacant, as the disease progressed towards a fatal termination.

III.—SYMPTOMS DEPENDENT ON DISORDER OF THE RESPIRATORY SYSTEM.

There was some affection of the respiratory organs in twenty-one cases. In fifteen of these auscultation detected unnatural sounds in the chest, while in the other six slight cough or pain in the chest was the only symptom. Cough, which in no instance was severe, occurred in thirteen cases. In one of these it seems to have been the result of irritation about the throat, but in the others it was accompanied by unnatural sounds in the chest. It made its appearance, as did also the sounds in the chest, towards the end of the first, or beginning of the second week; was generally, but not in every case, accompanied by a scanty glairy mucous expectoration. Twice the expectoration had a brownish tint, and was rather tenacious; but the peculiar rusty and tenacious expectoration of pneumonia never occurred. On applying the ear to the chest, the respiration was frequently found to be good, though accompanied by a loud rhonchus, and which, if the case proceeded favourably, would in a few days be succeeded by large crepitation, the bronchial mucous membrane having resumed its secretory function. Small crepitation was heard in the lungs of ten patients, four of whom died. It came on at a much later period than the rhonchus, and probably might have been oftener heard had it been possible to examine by auscultation the posterior part of the chest, a short time before dissolution, in all the patients who died.

This crepitation, even when very small, differed from that heard in pneumonia. It did not give that peculiar sound, resembling the crackling of salt in the fire, known as a characteristic of ordinary inflammation of the lungs, but seemed to be produced by air passing through a thin and inadhesive fluid. It was, moreover, invariably heard first, and frequently exclusively, at the lower and posterior parts of the lungs, though sometimes, as in Case 3. it extended over the whole chest. The patients but seldom complained of pain in the part where the crepitation was heard, though, if extensive, the dark hue of the skin, lividity of the face, laboured respiration, and feeble pulse, generally gave evidence of its existence. It extended in some cases with great rapidity; in others disappeared in a very short time, and in no instance did it leave, in those who recovered, permanent dulness of the lung.

IV.—SYMPTOMS DEPENDENT ON DISORDER OF THE CIRCULATORY SYSTEM.

I very rarely had the opportunity of observing patients from the commencement of the attack. In fact, it was upon an average the tenth day of the disease when I saw them, and then the pulse was usually about 100, not feeble, occasionally with some sharpness, but in most cases compressible, though not deficient in power. As the disease advanced, the pulse would now and then become intermittent and irregular; usually it increased in frequency, the pulsations being, on the average, 120, though sometimes they rose to between 130 and 140, and, in three or four instances, beat for a day or two as frequently as 160 times in a minute. The pulse would, at the same time, change greatly in character as the prostration of strength increased, though it very rarely became the small, feeble, almost imperceptible, thread-like pulse, which we are in the habit of finding, in most cases, where there is great exhaustion of the vital powers. It would still continue rather large, though exceedingly compressible, and often very difficult to count, apparently from the imperfect contraction of the artery, the sensation conveyed to the finger being that of the blood only incompletely filling the artery, and propelled through it with an irregular undulatory motion. In the less severe cases, however, this condition of the pulse was not observed; and seven passed through the disease with so little disturbance of the vascular system, (Case 8,) that the frequency of the pulse throughout scarcely exceeded 90 strokes in the minute.

V.—Symptoms afforded by the Surface of the Body.

Forty-two cases presented the peculiar measle-like eruption described by so many authors, which, in all those cases in which I have been able accurately to note the date of its appearance, first showed itself from the sixth to the eighth day, generally on the former. It appeared, in one instance, on the fourth, and another time on the fifth day; but I never saw it make its first appearance after the eighth day, though it was still visible on several patients admitted on the fourteenth, and on three who came to the hospital on the twenty-first day of the affection. Of the eighteen cases in which no eruption was observed, five only were admitted before the eighth day of the disease; it is, therefore, very probable that the eruption had existed in some of those patients, but had disappeared before their admission. These spots appeared most copiously on the chest, especially at its upper part, abdomen, and back, and, as has been said, resembled much the eruption which takes place in measles. The spots were sometimes slightly elevated; they disappeared under pressure, and reappeared from the centre to the circumference, when the pressure was discontinued; they usually began to fade within two or three days from their first appearance; but yet were a long time in dying away, and the skin often appeared stained by them, even a fortnight after their first appearance. Their eruption did not bring with it any change in the symptoms; nor was their abundance or scarcity at all in proportion to the severity or mildness of the different cases. Often they varied much one day from their condition on the previous one; and even in the same day they would sometimes almost entirely disappear, and then reappear without any evident cause. In five cases petechiæ also were present,—a complication which does not appear to be particularly ill-omened, and is certainly by no means so much to be dreaded as the dark and livid hue of the eruption, and of the skin generally, which is sometimes observed. My attention having been called to the point by a paper of Dr Staberoh, in the Medical Gazette for March, I have endeavoured to ascertain whether, as he asserts, the spots often change into ordinary petechiæ, but have not yet been able to satisfy myself upon the point, though, from one or two cases which I have seen, in which the spots greatly resembled petechiæ, I should think that his statement is very probably correct.

I only once noticed a miliary eruption take place in this fever.

Such were the chief symptoms presented by this disease, in those cases which came under my observation. There still remain, however, a few points worthy of notice, but to which I have not yet adverted. The commencement of this fever presented nothing peculiar. Shivering occurred, as far as I have been able to learn, in all instances, and patients usually began their history of the disease with the shivering fit, though, if interrogated more closely, most of them seemed to have felt, for a day or two previously, general uneasiness, to have lost their appetite, and experienced various odd sensations. The shivering, which but rarely occurred after the first twenty-four hours, was followed by a sense of heat, which would again give place to a feeling of chilliness, though soon the temperature of the body became permanently increased. I never measured the actual heat of the skin by the thermometer. The sensation of heat communicated to the hand was greatest in the most severe cases. It was a pungent heat (*calor mordax,*) not so striking upon first touching the patient, though often very unpleasant if the hand were kept in contact with his skin for one or two minutes. The patient's own sensations did not always accord with the condition of the skin, though usually they complained of heat of skin, and of great thirst, both of which seemed to be most distressing, in those cases in which the skin was most completely destitute of moisture. Many patients suffered much from thirst; and sometimes when the affection of the sensorium was severe, it seemed to be almost the only disagreeable sensation of which they were conscious. I have sometimes seen patients, even while delirious, and passing their evacuations in bed, still every few minutes exert their feeble powers to raise the mug of water, which stood by the bedside, to their lips; or if too weak to do this, the long draughts which they took when others gave them drink, and the manner in which they almost convulsively clutched the vessel, showed how grateful was the relief thus afforded them.

During the time that I have had an opportunity of watching this disease, I have been vainly on the look-out for the occurrence of crisis, for the symptoms increased by degrees, and diminished gradually; and, during the course of the disease, no peculiar phenomenon occurred from which one could prognosticate the fate of the patient. If any one symptom were of greater value than another in indicating the amendment of a patient, it was the occurrence of quiet sleep. When they slept they generally did well; and at the commencement of convalescence they passed most of their time in sleep. One case, indeed, I remember in which sleep seemed critical; it occurred on the fourteenth day, and lasted nearly uninterruptedly for forty-eight hours. Before it came on the patient's mind was wandering; the hands were tremulous; the pulse was 120, and very feeble; and the tongue furred, and deficient in moisture. After he began so sleep his intellects were clear, hands steady, the pulse had risen in power and sunk in frequency to 105, the tongue was much moister; and from that time the patient's progress toward recovery was uninterrupted. I have already alluded to a case in which purging of blood seemed to be critical; but these two cases were the only ones of the sort with which I met. The occurrence of perspiration was not critical; hæmoptysis took place once with no such result, and twice bleeding from the nose was followed by no change in the symptoms.

The following table may serve to show, that, within the first three weeks, no one period of the disease was more fatal to patients than another, though few of those who survived beyond the twenty-first day became its victims.

1	died on the	9th day.
2	. .	10th
2	. .	12th
2	. .	13th
2	. .	18th
1	. .	19th
1	. .	22d
1	. .	24th
1	. .	30th
1	. .	43d

The convalescence offered but few points of interest. Patients generally found their strength much reduced by the disease, but their appetite usually returned soon, and they were not long in regaining their strength; while it was but seldom that, when due attention was paid to keeping their bowels open, any circumstance occurred to delay their recovery. Thrice the parotid and submaxillary glands became inflamed in convalescents from fever. In two instances the application of leeches soon afforded relief; but in the other erysipelas of the head and face came on, the patient's strength failed her, and she died on the forty-third day from the commencement of her illness. No other complaints occurred during convalescence, but such as headach, or slight pain in the abdomen, produced by the patient's having eaten too heartily, or from inattention to the state of his bowels; and a day's abstinence, or a dose of castor-oil, sufficed to set all right again.

Of the sixty cases, fourteen died, or one in $4\frac{2}{7}$, which is a fearfully great mortality; and the number of deaths will still remain extremely large, even though we leave out of our reckoning two cases, in which the patients were evidently dying when admitted; another, in which the patient had previously suffered the extreme of want and wretchedness; and a fourth, in which the patient was not admitted till after three weeks illness. Thirty-eight of the patients were males, and twenty-two were females; seven of each sex died; and I do not know to what to attribute the greater mortality among the women, unless it be to the circumstance, that, while the sister in the male-ward was active and assiduous in seeing that the nurses did their duty in waiting on the sick, she who had the care of the female-ward was indolent and inattentive.

The following table shows the ages of the patients, and the proportion of deaths to recoveries at the different periods of life.

	Admitted.	*Died.*	*Recovered.*
Under 20	9	3	6
25	16	2	14
30	17	3	14
35	4	0	4
40	5	1	4
45	1	0	1
50	3	2	1
55	4	3	1
60	1	0	1
	60	14	46

There is one point which I perceive that I have omitted to notice, but of which I will now say a few words before passing to the treatment, namely, the extreme contagiousness of this fever, which was one of its most formidable features, rendering as it did the attendance upon the sick, or the watching the progress of the disease, an occupation of unusual hazard. Since last summer eleven gentlemen, who were in the habit of frequenting the hospital, have been attacked by the fever, to which three have fallen victims; sixteen nurses, and twenty-one patients admitted for other affections have likewise suffered from the disease which terminated fatally in ten instances, and I do not doubt, but that many similar cases occurred which did not come under my notice. Seventeen of the sixty cases to which my observations especially refer, were those of persons who had either been in attendance on the sick, or who at least lived in the same house with them; nine of these seventeen were the cases of patients, who, admitted into the hospital for other affections, were while there attacked by fever. It was during the extreme severity of the past winter that the disease began to spread within the walls of the hospital; the great difficulty of keeping the wards at a sufficient temperature often induced the attendants to close the windows, and thus patients were kept for hours together in an atmosphere impregnated with exhalations from the fever patients; and it was at last found necessary, from the disease spreading from bed to bed, to close one of the female wards. The cold weather appeared to exercise an unfavourable influence upon the patients, and the disease seemed to increase in severity as the thermometer sank, while with the return of spring it became milder, and the fatal cases were less numerous. Perhaps, however, as my observations refer to but a small number of patients, this may have been merely an accidental coincidence; I will, therefore, not dwell upon it, but pass to the examination of the curative measures employed to combat this formidable disease.

I shall not say much of the treatment adopted in this affection, nor of the power of medicine to control its intensity; for, convinced as I am, that, in order rightly to estimate the influence of remedial agents upon any disease, there are requisite the experience of years, together with habits of the most diligent and accurate observation, a mind free from prejudice, and a judgment more nice than is usually possessed; I cannot suppose that my opinions, upon such a subject, would be of much value.

The indications, in accordance with which the treatment of these cases was conducted, were two; first, to support the powers of the patient; second, to combat local affections as they might occur. It was but very seldom that patients were seen at a sufficiently early period, for there to be any chance of cutting short the disease; in those few cases in which they were seen from the first, emetics were generally employed, and though after their administration, the pain in the head and sense of nausea frequently were diminished, yet I do not recollect any case in which the disease was cut short after rigor had once occurred. Four patients had been bled largely from the arm before admission; they all had the disease severely, but recovered with the exception of one, who sank on the forty-third day under an attack of erysipelas of the face; and as the character of the epidemic seemed to forbid venesection, it was never employed with a view of cutting short the disease, and was only once resorted to during its progress.

When a patient was admitted, as the greater number were, about the tenth day, he was very generally placed in a warm bath, a measure often requisite for the sake of cleanliness, and which seemed in most cases to be very grateful to his feelings, though it did not appear to exert any influence, either good or bad, upon the subsequent course of the disease. If then his powers were not very much reduced, and no local affection called for especial treatment, he was usually allowed broth diet, and was directed to take two grains and a half of mercury with chalk every eight hours; and a dose of castor oil was given him on the following morning if his bowels did not act before; and in a few mild cases no other remedies were used during the whole course of the disease, than an occasional laxative and small doses of mercury and chalk. On the day after the patient's admission, one was better able to judge of his condition, and to ascertain more surely whether there existed any local affection.

In twenty-eight cases local bleeding was resorted to; frequently it was employed on the day after the patient's admission, and almost always within a week from that time. The head was the part from which blood was most frequently taken, cupping-glasses or leeches having been applied to the forehead or temples fifteen times; in two of those cases local depletion was also practised from the abdomen, and in three from the chest. In four other cases blood was drawn from the chest, and in nine from the abdomen, besides three instances in which leeches were applied to the parotid glands.

In sixteen of these cases, three of which terminated fatally, wine was employed, but in the other twelve no stimulant of any sort was resorted to. Wine was given in thirty-five cases, including all the fatal ones, the average quantity being about ten ounces in the twenty-four hours, though to some much more was given; and one patient, who ultimately recovered, took twelve ounces of wine and eight ounces of brandy, besides a large quantity of sago and strong broth in the twenty-four hours for several days. There were some cases in which the symptoms, during the whole course of the disease, being purely those of exhaustion, no medicine was given beyond an occasional dose of castor oil, while the patient's powers were supported by the liberal use of wine. The use of opium at night was sometimes found beneficial in diminishing subsultus, or in assisting to procure sleep; but it was not very much used, nor have I seen any very decided results from its employment.

The above is a rough outline of the treatment pursued; and here I conclude my very imperfect sketch of this formidable disease, and leave untouched many very interesting and important questions; as, for instance, those of its origin, mode of propagation, and identity with previous epidemics of fever. My own experience is far too limited to permit of my hazarding an opinion upon such subjects. One thing, however, I think my observation has taught me, which is, again to borrow the words of the immortal Hufeland, that "Each fresh epidemic is a new individual, and must, like the present, be studied in all its peculiarities, while from no previous one is it allowable to draw any direct conclusion with regard to another."

Art. X.—*Practical Observations on Chancre.* By Philippe Ricord, M. D. Surgeon to the Venereal Hospital of Paris. (Bulletin General de Therapeutique Med. et Chirurgicale). Translated, with Notes, by George Bell, M. D. &c. (Concluded from Vol. xlix. p. 482.)

II. *Diagnosis.*—Nothing is more difficult than the diagnosis of chancre. The antecedents, the pretended incubation, the seat, aspect, progress, complications, and the influence of treatment furnish only equivocal signs. Nevertheless, as regards the regular chancre, the habituated eye will seldom be deceived by the signs we have described, or by that peculiar kind of induration which, after being once carefully examined, is always recognized. It is necessary to remark, however, that the unequivocal, incontestible, pathognomonic signs of chancre, are the production of certain symptoms of constitutional infection, which alone succeed that antecedent; and, above all, the effects of inoculation with the matter taken at the period of increase, which effects are both regular and constant.

III. *Prognosis.*—In studying the prognosis of chancre, we should consider it first as a local disease, and then as a source of general poisoning.

The first head embraces the probable duration of the disease, its possible deviations from the normal state, the occurrence of complications, the development of successive symptoms, and the possibility of its being still communicable.

The regular chancre, in a person living properly, and otherwise healthy, constitutes a local disease of small importance. Taken at the commencement, and treated properly, cicatrization may be effected in eight or ten days, and when left to itself, it may undergo a spontaneous cure, in from three to five weeks, as already remarked. It always yields to skilful treatment, without working any serious mischief. The particular seat of chancre should have great influence on our prognosis, as regards its probable duration. Thus a chancre situate on the *frenum*, which is easily perforated; a chancre in the *urethra*, constantly bathed by the urine; and a chancre on the anus, irritated by the stretching of the parts when at stool, and soiled by the feces, although uncomplicated; *cæteris paribus*, take a longer time to heal. In like manner, chancres of the neighbouring parts, which we are obliged to keep covered, and those situated in parts liable, from their functions, to undergo changes of volume, are long in healing.

However regular chancre may be at its commencement, we should dread the occurrence of complications and deviations whenever any of the causes already specified are present. It does not follow that the disease shall be slight, because it was trivial in the person by whom it was communicated. The most troublesome case I have met with during the six years that I have been surgeon to the Venereal Hospital of Paris, was derived from a woman in whom the disease was so trivial, that the most careful examination could discover only a minute chancre, which was cured in twelve days.

With regard to successive affections, we must take into account the disposition of the parts affected, and the particular seats of the ulcerations. By successive affections are meant those which are only a gradual continuation of the same malady, such as the production of new chancres, the developement of sympathetic bubos from extension of the inflammation, and the occurrence of symptomatic bubos, arising from the transport of the venereal virus. Whenever the virus is retained in the parts, or touches points susceptible of inoculation, we should dread the formation of successive chancres. Of this kind are chancres of the anus, succeeding those of the *fourchette* in the female; and, in some cases, chancres commence at the posterior extremity of the raphé, which, becoming swelled, assumes the appearance of a condylomatous excrescence, and may be mistaken by the unaccustomed eye for a hemorrhoidal tumour.

To conclude, whenever a wound or other solution of continuity is situated in the vicinity of a chancre, we should dread the occurrence of inoculation.

Important differences exist in the prognosis of the varieties of chancre, resulting from certain complications or conditions, which make it deviate from its normal progress; and we here resume that subject.

When a chancre has assumed the phagedenic form, its duration ought to be much longer. It is the cause of deformity by destroying the tissues in which it is situated, and may give rise to hemorrhages, by attacking important vessels. Urethral, vulvular, and anal *fistulæ* are a few of the serious disasters which ensue.

The diphtheritic, phagedenic chancre, considered as a local affection, is the most troublesome variety, because we can neither foresee the length of its duration, nor the extent of the ravages it will commit. Next to it is the gangrenous phagedenic chancre, from excess of inflammation, in which case we must always fear the extensive destruction of the tissues affected. Its duration is short as in ordinary gangrene, which advances with sufficient rapidity. Lastly, indurated chancre, the final cure of which is generally tedious, is, *cæteris paribus*, much less serious than the preceding, both as regards possible local alterations, and the extent to which it may proceed.

the period of increase; at least when the increase of ulceration is not due to excess of induration. They generally occur during the period of reparation, or rather after cicatrization has taken place; and this more especially, if a nucleus of induration occupies the place of the chancre.

Indurated chancre is the principal source of constitutional syphilis; next to it is the phagedenic chancre, which, however, may be of considerable extent and duration, without giving rise to general disease; and the least dangerous of all, in this respect, is the gangrenous phagedenic chancre, from excess of inflammation.

The number of primary symptoms with their complications, (except *induration*) do not aid us in forming a prognosis, and bubo, in the majority of cases, is far from proving that the disease has become general. Bubo, as has been already remarked, is frequently sympathetic, or distinct from syphilis; when it is virulent or symptomatic, it constitutes a disease identical with the chancre, whose consequences are neither more nor less troublesome, than if the patient, instead of having *one*, has actually *two* primary sores.

It is an incontestible fact, confirmed by daily observation, that all persons are not equally susceptible of general syphilitic disease. It is as clear to my mind, that certain idiosyncrasies can resist consecutive poisoning, as that no constitution can resist inoculation from a primary sore.

Certain conditions are necessary, in order to the developement of general symptoms; which, although they often escape notice, we are frequently able to detect. If we reflect on the ages of our patients, we are struck with the facility with which constitutional syphilis developes itself in children, especially through the medium of hereditary taint; and, on the other hand, how much less frequent it is in old persons after a recent infection. The sexes present differences which have not always been well explained, secondary symptoms being much less frequently observed in women than in men. The primary symptoms most frequent in women are discharges, which never give rise to them; but, on the other hand, if women with chancre were placed in the same hygienic conditions as men, they would be much more subject to secondary symptoms than the latter, for there are individuals of this sex, whose constitutions are more favourable to their developement, and who are the subjects of more frequent and more serious derangements. The lymphatic temperament should perhaps be regarded as the condition most favourable to the developement of general symptoms, and next to it, vices of regimen, to which men are much more exposed than women. Certain antecedent pathological states seem to predispose the body to general infection, and it likewise appears to be a fact, that they determine the particular form in which the secondary symptoms manifest themselves.

After the general considerations which precede,—the limits of this paper forbidding that we should go into details,—we shall not perhaps be considered rash, in hazarding the opinion that general infection may take place, the patient acquire a syphilitic temperament, and remain under its influence, without any symptom occurring, until the application of an incidental adjuvant cause favours the developement of the disease. Could not the incubations, so various and indefinite in their duration, be explained in this way? Would it not afford a reason, for the differences which we observe, in the secondary symptoms in different people, arising from the same cause? Does not the explanation apply equally well to syphilis, as to hereditary disease? Would not the same happen here, as in the case of individuals predisposed to scrofula, on the application of an incidental cause?

III. But the treatment of the primary symptoms, should have great influence on their consequences, and remove the difficulties which beset us in the prognosis of secondary symptoms. There is no question in therapeutics more debated than this, and none further from being solved; there is none of higher interest, and more needful of solution, for in no disease has the patient more need of a physician. The better ranks of society believe that the venereal disease is always curable. Secondary symptoms are considered as the result of bad treatment, and the blame is laid on the physician; for these people never reflect, that they are a natural consequence of the primary evil, aided by individual conditions. But this is not all. Faithful to that law which, according to Richerand, declares that all medical prejudices originate with physicians themselves, these latter strive to replace ancient blunders by modern errors. By one party it is declared, that no cure can take place, no repose be enjoyed, no future health anticipated, unless mercury be used; and by the other, future disease and death are predicted, if this remedy be employed. In the presence of opinions so positive and precise, by what laws and authorities is the physician to be sheltered from responsibility? which party is he to believe? Brilliant names are to be found in the long ranks of both; but the list of the mercurialists, if it is often equalled in talent, has an enormous majority, which in this numerical age adds great weight to the argument. A calm disinterested examination of facts, made by men equally uninfluenced by a desire for novelty, or a dread of being considered antiquated in their notions, would be productive of sound opinions on the subject; for, although they might differ on many points, still the concessions which each would be obliged to make, would in the end prove, that the principles of the mercurialists do not differ so much from those of their opponents, as might at first be imagined. In order to be convinced of this, it will be sufficient to examine the data on which they have founded their argument, and to analyze the facts which have been accumulated, from which it would appear evident, that the absence of a good diagnosis, and the want of a just appreciation of particular facts, can of themselves perpetuate the discussion. Although I am convinced that much has been done by modern authors, still I think that they have only proved one thing, which was already known, to wit, that bad treatment is hurtful, and that the same remedy is not universally applicable. On the other hand, the course pursued by certain visionaries is fatal; and we cannot forbear saying, that, so far from elucidating the question, they have embroiled and altogether confused it, by the denial of special causes, which can be recognized by whoever candidly examines the subject.[1]

However this may be, whatever be the treatment, if the local symptoms have been promptly removed, secondary syphilis is less to be feared, provided the patient have a good constitution, and the treatment have not produced any morbid alteration, which may become the cause of the future outbreaking of disease.

Before entering on the treatment of chancre, let it be well understood, that, however paradoxical it may appear to the ignorant, the primary syphilitic sore can frequently undergo a spontaneous cure, and this even in spite of bad treatment. The spontaneous cure of chancre, however, is, for the most part, tardy and uncertain; and the patient continues exposed, so long as it remains, to secondary symptoms, and troublesome local affections. Art, therefore, when well understood, should never remain inactive; but every effort should be made to quell the disease at its commencement, where we can always cut it short.

But it is at once strange and unfortunate, that, while all agree about other poisons, none hesitating to destroy the venom of the viper; and whilst precise rules are laid down concerning the treatment of wounds inflicted by rabid animals, chancre, so analogous to both in its origin and consequences, is unfortunately the subject of suppositions; and although it allows more time for us to act, false reasoning and absurd theories throw doubt and uncertainty on the means by which it is opposed.

In order that the treatment of chancre may be rational and efficacious, let us adapt it to its different phases, to its regular state, its deviations, and its complications.

Chancre, at its commencement, imperatively requires to be treated by what is called the abortive, or the eradicating method. This is an important precept, for there are no well attested cases, in which ulcers, destroyed within five days after infection, have been the cause of secondary symptoms, provided these ulcers were without any other actual complication.

But if it be evident that chancre should be destroyed as soon as possible, it is at the same time clear, that the same means cannot be employed in every case; and in order to appreciate properly those which have been proposed, viz. excision and cauterization, direct or mediate, we shall here examine them.

Hunter is decidedly of opinion, that the progress of chancre should be promptly arrested; and without noticing any distinctions which the sore may exhibit at its commencement, he gives the preference to cauterization, when the sore is situated on the *glans*, where it excites less pain, and does not cause hemorrhage. On the other hand, when the skin is the seat of disease, he prefers excision, because it is difficult to reach the limits of the disease with caustic. However good the precepts of the great English surgeon may be, supported as they are by the authority of M. Ribes Senior, the subject may be rendered more clear and precise, by attending to the differences which chancre presents at its commencement.

1*st. Pustule at the Commencement.*—This form, the rarest when the disease is contracted in the usual way, may be easily confounded, during the early days, with *herpes* or *eczema.* It yields to a single cauterization, if early applied. Cauterization of the pustule, which can certainly precede the syphilitic ulcer, is denominated by M. Ratier, the ectrotic method. This method would have been less contested, if, on the one hand, its proposer had given a true description of the time of appearance, the mode of developement, and the consequences of the pustule of chancre; and if, on the other hand, persons were not contented with the simple denial of its existence, by men who, though otherwise well informed, can furnish no other reason than that arising from faulty experiment, and incorrect observation.

It should be a rule to open and freely cauterize every pustule which appears on the exposed parts, during the first days succeeding suspected intercourse. This practice should be pursued, whatever may be the nature of the pustule, and without waiting to make a rigorous diagnosis, for there is no harm if the pustule were only a vesicle of *herpes* or *eczema.* The slight pain occasioned by caustic is not to be compared with the chance of permitting the developement of a chancre.* We prefer the nitrate of silver as a caustic in the first stage of this form of chancre; and it ought to be pointed, so that we may reach the bottom of the pustule, and apply it below the edges of the little ulcer which is discovered when the pustule is ruptured.

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* If *herpes praeputialis* have characters exclusively peculiar, which can generally be appreciated, is its appearance after exposure to infection a sufficient reason for cauterizing it in every case? We ask this question, because it is injurious, so far as the *herpes* is concerned, having seen troublesome sympathetic bubo result from it in one case, and painful ulceration in another.—G. Bell.

Whenever a doubtful pustule is situated on a moveable part, and can be readily isolated, excision should be practised. It is the operation to which we should always give the prèference in these circumstances, were it not that patients in general have a great repugnance to cutting instruments. I have frequently performed the operation with success, making use of the curved scissors, and dividing healthy tissues only, which afterwards cicatrize with great rapidity.

2d. Ulceration, or Chancre from the commencement.—This form, which, by reason of the ordinary condition of the parts affected, and the facility with which the pustule bursts so soon as it is formed, is the most common of all, and is to be treated like the former. As every doubtful pustule should be cauterized or excised, so every doubtful ulceration should undergo the same treatment.

3d. But we have said that chancre may succeed abscess, the result of phlegmon, and have for its seat a follicle, cellular tissue, a lymphatic vessel, or a gland. Can we in this form have faith in the efficacy of the abortive method?

Whenever a part has been exposed to the contagion of chancre, and enlargement of one or more follicles succeeds, we should unhesitatingly extirpate the part, and apply the nitrate of silver.

If follicular abscess exist, and the disease be still limited, the same treatment should be adopted; but if the disease have gone any length, the abscess should be opened, and the part deeply cauterized.

The same treatment applies to the small circumscribed abscess of the cellular tissue, arising from the imbibition of matter from a chancre in the neighbourhood, as produced by any of the processes already described.

When the disease is situated in a lymphatic vessel or gland, this treatment is no longer applicable, but we must have recourse to those means which are employed for the destruction of bubo.

The method of M. Malapert, so powerful in the hands of M. Renaud of Toulon, offers the greatest advantages, since it cannot be denied that, if we attack the disease at its commencement, before the surrounding cellular tissue is affected, the most happy results frequently follow; and I willingly give the name of mediate cauterization to this disturbing treatment.

This manner of treating the lymphatic or glandular chancre consists in blistering the tumour, the blister being large enough to cover the part affected. When the blister has produced the desired effect, and the raised *epidermis* is removed, the denuded surface should be covered with a pledget soaked in a solution of the deutochloride of mercury, of the strength of five grains of the salt to an ounce of water. The pledget should be fixed, if there is any chance of the patient removing it, and remain applied for three hours. This caustic solution is not equally well borne by all patients, some not being able to endure the acute pain it excites, for more than one hour. Instead of the solution of mercury, we may employ analogous preparations, such as a solution of two or three drachms of the sulphate of copper in an ounce of distilled water. An eschar must be produced, in order to obtain the desired effect. The eschar should not extend through the entire thickness of the skin; it is usually of a gray or brown colour, more or less distinct; it is seldom black, and is generally thicker than the portion of skin destroyed, which at first seems to be infiltrated, and afterwards to become the seat of a deposition of plastic lymph. When the eschar is formed, it should be covered with an anodyne cataplasm during the first day, for which should be substituted on the following morning a compress dipped in white wash,* to be retained till the slough separates. When this event has taken place, the simple ulceration that remains should be covered with lint spread with ointment. I have not found it advantageous to encourage suppuration, when our object is to cut short the disease. If the bubo resists the means employed, and symptoms of acute inflammation do not appear, the treatment must be persevered in, and the blister and caustic solution repeated.

It frequently happens, both from the patient having been too late in asking advice, and from the means recommended not acting with sufficient energy, that the disease is not destroyed, and the chancre is developed. Whatever be the time of its duration, and whatever the form under which it has appeared, we must endeavour to destroy the chancre as quickly as possible, if its seat and limits permit. This precept, the truth of which is strengthened by daily observation, cannot be too often repeated. Of those affected with constitutional syphilis, who have came under my observation, in none had the chancre existed for less than ten, twelve, or fifteen days; and in the great majority of cases the primary symptoms had remained for three, four, five, six, or a greater number of weeks.

If we consider, in addition to this, that individual conditions are necessary, in order to the production of general disease, and that these conditions, though absent at first, may show themselves at a later period of the primary disease, it will be evident, that, so long as the chancre is permitted to remain, the chances of general poisoning exist. I add further, and still in opposition to received prejudices, that if it is certain that secondary symptoms have no connection with the rapidity of the cure, the local treatment by which this is effected has no influence upon them, and we may say, that whatever treatment cures the local disease most rapidly is, without doubt, the best antisyphilitic.

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* The white wash consists of one part of the *Liquor Plumbi Subacetatis*, and thirty of water.—G. B.

If the tissues in which the chancre is situated have become infiltrated, or if the chancre itself has acquired a certain size, the nitrate of silver will not act to a sufficient depth, and if we practise excision, there is a risk of cutting into parts already the seat of disease. Having observed that gangrene, when it attacks a chancre, reduces it to the state of a simple ulceration, I have obtained the most happy results from the use of caustic potash, and the *pâte de Vienne.*[*] I prefer the latter escharotic, but it should be employed with caution, in order that its effects may extend one or two lines only beyond the actual disease. One objection to this method is, that, in a great number of cases, if the cauterization *en emporte-pièce*,—if I may be allowed the expression—be carried to the necessary extent, parts are exposed which it is our wish to save; otherwise, wherever it is applicable, and skilfully applied, it will afford the best results. It must likewise be remarked, that, as considerable œdema frequently results from this method of treatment, it ought not to be adopted when the chancre is situated on the inner surface of the prepuce, or on the *glans penis*, where there is any degree of phymosis; but, excepting in this case, it is a practice not to be neglected.

The chancre which we have been unable to attack in this way, or that which retains its specific character in spite of our efforts, demands another kind of treatment.

1*st*. Although an ulcer should not be too frequently dressed, when the process of cicatrization is going forward, it is quite otherwise with the chancre in the stage of increase, for it must be remembered, that the matter secreted by the sore becomes a permanent cause of the disease, for which reason it should not be permitted to remain. The dressings, therefore, should be regulated according to the abundance of the suppuration.

2*d*. As the affected parts, except in the cases to be pointed out afterwards, should be uncovered, great care ought to be taken in the case of cutaneous chancres, that they do not become covered with crusts under which the pus may lodge and burrow.

3*d*. Cauterization with the nitrate of silver should be repeated so long as the ulcerative stage continues, and when, on the removal of the eschars thereby produced, any of the characters of this stage are observed in the bottom or on the edges of the sore. When reparation commences, we must abstain from the use of caustic to the healthy part of the ulcer, and continue its application to the parts that retain a specific character.

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[*] The *pâte de Vienne* is made by mixing five parts of quick-lime, with six of caustic potash, and making it into a paste with alcohol.

4th. If greasy substances are generally hurtful in the treatment of chancre, mercurial ointment, except in a few cases, is especially injurious; for nothing is more common than to see chancres multiply, extend, or become inflamed when, free from induration, they are dressed with mercurial ointment.

5th. As it is wrong to allow the matter of chancre to remain in contact with the surface that secretes it, so it is very advantageous to diminish the secretion. The first of these indications is fulfilled by the application of dry charpee, and the best mode of fulfilling the second is by the use of the *Vinum Aromaticum* of the pharmacopœia.* The following is the manner in which I employ this remedy.

The ulcer is well washed with the liquid, care being taken at the same time not to cause it to bleed; it is afterwards covered with a small quantity of lint, moistened only with the same fluid, for when it is too wet, the cure is retarded by the kind of maceration that takes place. At each dressing the lint should be moistened with the fluid prior to its removal, because having become dry and adherent, the part would otherwise be irritated by its separation.

Those who attend my clinical course at the *Hôpital des Veneriens* may be convinced of the good effects of this treatment, for unless the dressing be ill applied, successive chancres never appear, as is too often the case when other dressings are employed. The *Vinum Aromaticum* diminishes the purulent secretion, and tends to promote cicatrization, by modifying the surface of the virulent ulcer. It likewise protects the neighbouring parts from inoculation, by acting as an energetic astringent.

I have met with some cases where the secretion continued to be very abundant, in spite of this treatment, and in these I have succeeded perfectly, by making use of the vinous decoction of oak bark. If there is pain, and if this is increased by the *Vinum Aromaticum*, it will be found very advantageous to combine the wine with opium, in the proportion of eight or ten grains to the ounce. It ought to be observed, however, that in some cases the pain disappears on augmenting the quantity, while in others it must be diminished, in order to produce the same effect.

It is sometimes necessary to suspend the use of the medicated wine, or even to renounce its employment altogether. Thus we occasionally meet with cases where the sore remains stationary, though the suppuration has ceased, in which event the sore should be dressed with opiate cerate, or an emollient poultice applied for several days, and the use of the wine afterwards resumed; and in other cases, the chancre being accompanied by induration, the latter is increased by the stimulating application, and the process of cicatrization prevented from taking place. With these exceptions the vinous dressing is what I generally prefer.

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* The *Vinum Aromaticum* is prepared by macerating four ounces of the *Species aromat.* of the Parisian codex, in two pounds of red wine, for six days, straining and adding two ounces of the *Alcoolat de vulnéraire.* The aromatics employed are the dried leaves of sage, (*Salvia officinalis,*) thyme (*Thymus vulgaris,*) hyssop, (*Hyssopus officinalis,*) water-mint (*Mentha hirsuta,*) marjoram (*Origanum vulgare,*) and wormwood, (*Absinthium vulgare,*) in equal parts.—G. B.

6th. When the process of reparation has commenced and goes on with regularity, we must continue the vinous dressing, and only make use of caustic when it is necessary to destroy exuberant granulations. It often happens, that although the surface of the ulcer is on a level with the surrounding parts, and is no longer secerning, the disease is not completely cured, for the finishing of which process, the sore must be covered by a kind of epidermis. This event may be brought about by the superficial application of the nitrate of silver, so as merely to whiten the surface without acting as a caustic.

In the case of regular uncomplicated chancre, local treatment will suffice, provided no induration remains. Although rest and proper regimen should be prescribed when this treatment is being applied, there is no necessity for an absolute system; for while antiphlogistic treatment, local and general, is indicated, when the patient is robust or prone to inflammation,—a tonic regimen, with all the means calculated to correct the evils arising from a bad constitution, from co-existing ailments, or from a previous bad meagre diet, must be prescribed; for it must be remembered, that the complications and vicious characters that chancre may assume, result from a depraved state of constitution, or other co-existing maladies.

When sound cicatrization has taken place, and the parts have resumed their normal condition, the cure may be considered as completed, unless any induration remains, which leaves much probability of a relapse.

We now proceed to consider therapeutically, the principal varieties of chancre, the existence of which we have admitted.

1. *Masked Chancre. (Chancre Larvé).*—When the chancre is situated in the urethra, and accompanied by symptoms of acute gonorrhœa, antiphlogistic measures must be had recourse to; leeches to the perineum and penis, local emollient baths, general bathing, opiate applications, diluents, &c. We must likewise endeavour to prevent erections, which irritate and augment the ulceration, by distending the affected parts. In order to fulfil the latter indication, I prescribe two of the following pills, to be taken every night. *

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* The combination of the extract of hyoscyamus with camphor will perhaps be found as powerful, and more generally applicable than that of opium. Some per-

Camphoræ, ℈ ij. *Opii*, gr. viii. *Mucilaginis*, q. s. *M. Divide in pil. sexdecem æquales.*

If small abscesses form at the orifice of the urethra, they should be opened early, and when all inflammatory symptoms are gone, the patient should make use of the *Vinum Aromaticum*, diluted with an equal quantity of the decoction of poppy heads, as an injection. If no irritation is produced, the wine may afterwards be used pure. When the symptoms of gonorrhœa are not too intense, we may frequently have recourse to cauterization with the nitrate of silver at the commencement, the caustic being applied by the aid of M. Lallemand's instrument. Cauterization of the urethra is of great benefit when the acute symptoms of gonorrhœa are passed, and when the chancre exists uncomplicated, acting in the latter instance as in the case of external chancre.

When the sore is situated at the entrance of the canal, so as to be visible, the same treatment is applicable as in other cases, and it will be found of great benefit, when the patient can bear it, to retain a small cylinder, impregnated with the substance with which the chancre is dressed, in the orifice of the urethra, so as to prevent its lips from coming in contact.

When the blennorrhagic symptoms depend upon the urethral chancre, they cease when the sore is healed; but if they constitute an independent concomitant affection, they require the usual treatment for gonorrhœa.

In those cases where the deep parts of the vagina, the neck of the uterus, or the cavity of that organ, are the seat of chancre, the speculum should be employed at each dressing, in order that we may make the necessary topical applications. Great cleanliness should be observed, when the sore is situated at the inferior part of the rectum, or on the anus, and the dressing repeated every time the patient goes to stool. Every possible means should be employed to render this latter operation easy, and, lest the affected parts should be irritated by the passage of hardened feces, it ought, if possible, to be preceded by a clyster of mucilaginous fluid. This practice indeed cannot be dispensed with, unless the introduction of an elastic gum tube occasions more pain than the excretion of feces. The dressing may be retained by the aid of a small *mèche*, but simple injection must suffice, should too much pain and spasm of the sphincter be occasioned by the presence of a foreign body. Care must be taken not to mistake ulcers of

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sons cannot take opium in any form, and the idiosyncrasy which prevents the use of hyoscyamus, is much less common.

A paper by Mr B. Bell on the employment of hyoscyamus and camphor in gonorrhœa, with a view to prevent nocturnal erections, will be found in the 2d volume of the Edinburgh Journal of Medical Science. His formula is, R. *Gum. Camphor.* gr. vi. *Ext. Hyoscyam*, gr. iv. *M. et div. pil. ii. St. S. sumend.*

this kind for simple fissures, as we have seen done, for if we practise excision in these cases, we shall not fail to aggravate the disease.

2. *Superficial chancre.*—In the majority of cases, these chancres do not present any particular indication. When they are situated on the glans or prepuce, when they are not indurated, and when symptoms of balanitis at the same time exist, they may be mistaken for the simple erosions which accompany this catarrhal inflammation. A single superficial application of the nitrate of silver, followed by the interposition of fine lint between the glans and prepuce, will generally suffice to make them disappear. Should they persist, the treatment detailed above should be adopted.

3. *Phagedenic chancre.*—When the frenum is destroyed, a fistulous opening made, or bridges formed by the peculiar way in which the soft parts are sometimes acted on by this kind of chancre, the ulcerated surfaces must be excised, for adhesion is prevented and the mischief kept up, by their remaining in contact with each other. When the frenum is perforated, the cure is much accelerated by detaching it at either adherent extremity with the curved scissors, and afterwards freely cauterizing the part.

1*st. Phagedenic chancre, pultaceous, diphtheritic.*—It is necessary that the conditions which give rise to this form of chancre should be studied with great care. It frequently happens that the patient dwells in a cold damp unhealthy situation, and we find that when he changes his place of residence, the disease undergoes improvement. Thus, if he removes from a warm to a cold climate, it often undergoes a frightful change, while in opposite circumstances it frequently goes on to a happy termination. This will perhaps explain, how certain effects are obtained by removing the patient from one hospital to another, or by transferring him to a town in the south, more salubriously situated than the one he previously inhabited.

In this variety of chancre there is some concomitant visceral affection, under the influence of which the disease is apparently developed. This concomitant disease, for the most part, consists in a depraved condition of the *primæ viæ*, which either maintains or favours the disease, and it is our chief duty to obviate the operation of this cause, for if it persists, or is aggravated by bad treatment, we cannot hope to cure the syphilitic ulcer, whose particular form it has determined.*

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* The constitutional state, which apparently determines this form of chancre, is analogous to that which causes the developement of certain forms of *erysipelas*, and the sloughing degeneration of wounds and ulcers. I have frequently observed in the London hospitals, that phagedenic chancre, cellular *erysipelas*, and sloughing of ulcers, &c. are most common in those whose constitutions are depraved from bad diet, or the abuse of stimulants, and that they are symptoms of a general disorder. The most successful practice in those cases, consists in regulating the diet, mild al-

In fulfilling all the therapeutical indications, which the different pathological states, accompanying and complicating the chancre, may present, we must beware of attributing the troublesome and rapid progress of this variety to a peculiarity in the nature of the specific cause, or a particular intensity of the venereal virus. This is a common error, and is the source of much evil, for the practitioners who adhere to the old doctrine, run to their specific, and administer mercury, in quantities proportionate to the strength of the poison they wish to counteract.

It should be remembered, that the essence of syphilitic diseases, like that of small-pox, is always identical, (the differences they exhibit being dependent on individual conditions,) and our best efforts should be employed to combat them with rational means.

With few exceptions, nothing can be more injurious than the use of mercury, in any way, in this form of chancre; and the more so, if, instead of induration, it is accompanied by nervous irritability and inflammatory symptoms. It is not uncommon to see these ulcerations throw out troublesome granulations, when on the point of passing into the stage of reparation, and chancres which were limited become phagedenic under the baneful influence of mercury.

Whether the variety of sore now under discussion originates from a chancre on the skin, a chancre on the mucous membrane, or from a virulent bubo, the treatment most frequently and rapidly successful, consists of the combined use of caustic and the *Vinum Aromaticum.* The cauterization should be frequent and deep, so as to follow the ulceration in its progress, and the dressing with the aromatic lotion should be repeated, according to the abundance of the secretion. In some patients the disease can only be removed by an almost perpetual washing of the sore. Care must be taken not to rub or fret the edges of the ulceration, on removing the dressing, for each excoriation becomes a point of inoculation, and wherever the skin is raised, a new surface is presented for the absorption of the venereal virus, and consequent extension of the evil. It has been recommended to apply leeches to the chancre when the local inflammation is very vivid; but I am extremely doubtful of the soundness of the practice, which is far from being so beneficial as some practitioners have described. Independent of the difficulty of making them fasten on the ulcerated surface, the disease extends to the depth of the wound made by

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teratives, gentle aperients, anodynes, and relieving urgent local symptoms, by incision, cauterization, application of poultices, or opiate lotions. The local affections so frequently disappeared under the influence of constitutional treatment, that we are warranted in considering it as being, generally, more important than local means. The alterative most frequently consisted of *Hyd. c. Creta* gr. ii. *P. Ipecac.* gr. i. *Ext. Conii.* gr. ii. in the form of pill, and repeated three times a day.—G. Bell.

them; while, on the other hand, if they are applied to the parts surrounding the sore, each bite is exposed to the contact of the poison, and may become the centre of a new ulceration. When the local inflammation renders blood-letting necessary, the leeches should be applied at a distance from the sore, the bites being afterwards protected by a compress wrung out of white wash, until cicatrization is complete. In the inflammatory complication, the best results are obtained by regulating the diet, rest, the use of diluents, tepid bathing, and the application of emollient or narcotic decoctions, and soothing cataplasms to the part.

When the chancre is accompanied by much irritability or pain, to the presence of which inflammation is not essential, we must prescribe both the general and local use of opiates. The sore may be dressed with the following preparation, if inflammation be present.

℞. *Aq. Lactucæ destil.* ℥viij. *Ext. Gum. Opii* ʒi. *M.*

If there be no inflammation, it will be found advantageous to combine the opium with wine.

Cauterization with the nitrate of silver is a remedy not to be neglected; and no error in doctrine should prevent its application, because pain and inflammation are present; for when properly applied, it generally proves the best sedative, and most certain antiphlogistic.* Proofs of this fact are exhibited daily in the wards of the venereal hospital, where it is common to hear the patients themselves demand the application of the caustic. The acute pain, excited at the moment, soon subsides, and is succeeded by a degree of comfort which we vainly look for from other remedies. In a few cases it is necessary to abandon these means for a time, and to make use of unguents, particularly the opiate cerate.

The phagedenic chancre sometimes makes no progress towards a cure, but either continues to advance, or remains stationary. In these obstinate cases, where we cannot destroy the cause of the evil, we sometimes succeed by making use of carrot poultices, or the application of melted wax or digestive ointments. Powerful caustics, such as the butter of antimony, potash, and the actual cautery, have been tried. I have employed *pâte de Vienne* successfully, and as means less violent, blistering ointment, and the powder of cantharides.

Whenever the treatment above described proves abortive, we must change our method. If the ulceration be shallow, I either apply a blister, or sprinkle over it powder of cantharides, and if it be deep, if it have succeeded a virulent bubo, and if the raised integument be still sufficiently thick, I likewise have recourse to the blister, and at the same time introduce the powder of cantharides into the suppurating cavity. This dressing remains applied for twenty-four hours, when the treatment of ordinary chancre is resumed. The ulcer soon becomes clean under this treatment; healthy granulations appear; the cavity, if such existed, rapidly fills up; and the separated integument unites. In some patients it is necessary to repeat this treatment, re-applying the blister when it has not fulfilled the end required, or when the surface of the ulcer is dry, and repeating the application of the powder of cantharides every three or four days, until fleshy granulations appear. *

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* For a detailed account of the sedative and antiphlogistic effects resulting from the local use of nitrate of silver, *vide* Lallemand *Sur les Pertes seminales involontaires*, and the chapter on *irritable urethra*, contained in Mr Macilwain's work on stricture.—G. B.

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* With regard to the lymphatic chancre, or virulent bubo, when the abortive treatment, antiphlogistics, &c. fail, and suppuration takes place, I puncture the swelling whenever fluctuation can be perceived. If the cavity be small, I evacuate all the matter, cauterize, and dress it like an ordinary chancre; but if it is large, the part should be poulticed for twenty-four hours, the cavity filled next day with the powder of cantharides, and a blister applied. The vinous dressing is employed on the following days, and the blister, or cantharides, repeated only when the healing process is long in commencing. It is worthy of remark, as a circumstance not devoid of interest, that of more than 400 patients who have been treated in this way, in three only have slight vesical symptoms occurred, and in one, inoculation of isolated points on the blistered surface.

This is a remarkable fact. We have seen a number of cases treated in this way, but in none was there strangury, or any of the disagreeable symptoms which result from the absorption of cantharides. How is this to be accounted for? Numerous facts increase the difficulty of the explanation, for we know that ulcerated surfaces are highly absorbent, and it is not uncommon to make use of them as the channel for introducing medicines into the system. It is a matter of general experience, and stated before in this essay, that the best way of producing a chancre is by inoculating a denuded or other absorbing surface with the matter of chancre. That a blistered surface is absorbing, is proved by the strangury which not unfrequently results from a blister being too long applied, and by the constitutional effects of strychnine, opium, &c. applied to such a surface; yet it is remarked by our author, and truly, as we have observed in many cases, that chancre is very seldom produced by the application of the syphilitic virus to a blistered surface. I am inclined to doubt whether the length of time a blister remains applied favours the absorption of cantharides, but rather consider that the absorption takes place prior to the developement of acute inflammation. Facts seem to warrant this supposition. If any doubt the specific character of the matter secreted by the glandular chancre, we may observe that the same matter, when inoculated, produces a chancre. It is true that the experiment has often failed, and not being repeated, the disastrous conclusion has been deduced, that the patient had not syphilis. M. Ricord notices this fact in his clinical lectures, and fully explains the fallacy. The disease is situated in the gland, and is a specific inflammation. Suppuration does not take place so quickly as in the case of common phlegmon, and it very frequently happens, that simple inflammation, going on to suppuration, occurs in the cellular tissue, which envelopes the diseased organ, and this at a period anterior to that when the same event occurs in the infected gland. If the patient is inoculated with the matter of such a bubo, it is impossible that chancre can result; for the matter of chancre alone can produce chancre. Again, supposing that suppuration of the diseased gland has taken place, we can easily understand how the experiment of inoculation should fail, if it is performed with the matter which first escapes from the bubo, for we are experimenting either with healthy pus, or with venereal matter too much diluted to produce any specific result. Before we form any conclusion, then, we should be certain that the suspected gland has suppurated, and that the experiment is performed with the matter resulting from such suppuration.

Daily experience authorizes me to recommend this treatment, but should it happen to fail, and the disease continue to advance, we must cauterize the part with the *pâte de Vienne*, and afterwards apply an appropriate dressing.

It frequently happens that the edges of the phagedenic chancre are so small and thin, that it is a waste of time to attempt to induce adhesion, and it is the best practice, in this case, to destroy the altered tissues. In order that we may act with promptitude and vigour, it is necessary to establish certain distinctions. In some cases of ulceration succeeding abscess, there is extensive separation and thinning of the skin, from the previous lodgement of matter, without the chancre assuming the phagedenic form, while in other cases it undergoes this deviation. When the phagedenic form has not occurred, the diseased integument may be excised. We prefer the curved scissors for this purpose, our object being to give that form to the sore most favourable to cicatrization; for it is a matter of great importance to avoid deformity, which in certain regions bear everlasting witness to an evil, which one always wishes to forget. When the ulceration continues to extend phagedenically, nothing is more injurious than the use of cutting instruments; for instead of limiting the evil, they aggravate and extend it, unless followed by cauterization of the bleeding points. It is better in this case to trust to cauterization alone, especially to the *pâte de Vienne.* In addition to the facility and neatness with which the diseased parts may be removed by this caustic, there is a good chance of completely destroying the virulent surface, or at least of preventing the new borders of the sore from being quickly inoculated by the interposition of an eschar. A vital reaction likewise is produced, the absence of which in some cases is the chief cause of the continuance of the ulceration.

After what has been said, is it necessary in every case to shun the use of mercury, and other medicines reputed anti-syphilitic? If it is true that, in the great majority of these cases, mercury, sudorifics, &c. are hurtful, it is no less true that, in certain circumstances, these alone have been of use; and this fact has been frequently proved by the practice of the men who avow the greatest aversion to the use of mercury. But is it possible, in the present state of the science, to point out the circumstances which render mercury useful, or even indispensable? I am ignorant of them, and I abandon myself to a rational empiricism. Thus, if the disease goes on in spite of the means pointed out above, I have recourse to the treatment so long regarded as specific. I make use of mercury, first, as a local application, and afterwards as a gene-

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The matter of chancre produces chancre, by its acting as a local irritation, and its non-action on a blistered surface is an additional proof of one of the positions maintained by our author, to wit, that acute inflammation most frequently protects the part from the infection of syphilis.—G. Bell.

ral agent, introducing it by the mouth or skin, according to the circumstances to be mentioned hereafter. The local application, the general administration of the mineral, or both together, are continued according to the amelioration which takes place, while, on the other hand, both must be suspended if the disease increases during their employment.* In the cases where, according to the old doctrines, it is thought necessary to commence with mercury, which I do not advise, it is wise to suspend the mercurial treatment as soon as adverse symptoms appear.

With regard to other remedies styled antisyphilitic, some may be employed when we wish to exhibit a general tonic; or to stimulate the digestive tube, the urinary organs, skin, &c. Soothing applications, with local and general antiphlogistics, will be frequently indicated, but useful in his hands only, who, free from prejudice, knows how to use them properly.

2d. Indurated Chancre.—Induration, an essential character of the Hunterian chancre, is a condition never to be lost sight of in the treatment of venereal sores; for if it is incontestible that chancre will disappear under a variety of kinds of treatment, it is no less true, that induration is a source of danger, and may persist after cicatrization is complete. Induration most frequently has a tendency to increase, and not only opposes the healing process, but causes the sore to assume the phagedenic form, by determining the peculiar gangrene of which we have already spoken.

This form of chancre is seldom complicated with pain or inflammation, and the chief object of treatment is to remove the induration.

The common indurated chancre should be dressed two or three times a-day, with fine lint smeared with ointment consisting of six grains of calomel intimately triturated with two drachms of opiate ointment.

If the suppuration is copious, this dressing should be preceded by the use of a lotion containing the *Vinum Aromaticum*; and should it continue too abundant, it may be dressed with the wine unmixed.

In cases where the disease is attended by inflammation, nervous irritability, and interstitial gangrene makes progress, the preference should be given to the concentrated solution of opium, as a local means of cure; and this dressing should be continued until the sore is reduced to a simple state, by the combination of emollient and antiphlogistic treatment.

When the indurated spot is small, cauterization, which cannot go beyond the limits of the sore, is much less efficacious than in other forms of the disease. Nitrate of silver may, nevertheless, be used, for it modifies the surface of the ulcer, frequently arrests the progress of gangrene, and represses the fleshy granulations, which, in this form of chancre, have sometimes a tendency to become vegetating and fungoid. Nitrate of silver can do harm only when ill applied.

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* Vide Matthias on the Mercurial Disease, for most judicious remarks on the exhibition of mercury in syphilis.—G. B.

Whatever be the seat of chancre, or the form of its commencement, if the induration persist after the cicatrization has taken place, this induration should engage the attention of the physician, inasmuch as it is the forerunner of evils to come. Delpech and others recommend its excision; but this operation has been so often succeeded by fresh ulceration in the part operated on, that it should only be performed when the chancre is small and distinctly limited. Mercurial ointment frequently removes the induration following cicatrization; but it is of importance to be aware, that in certain circumstances it soon excites irritation, and a return of the ulcerative stage. This is particularly the case with rancid ointment.

If the ulceration be extensive, as when it accompanies a virulent bubo, a cure may still be obtained by local means. When one knows how to profit by the good effects resulting from the combined use of blisters, mercurial ointment, and pressure, deep cauterization, or division of the indurated parts should be seldom practised. The treatment consists in covering the surface of the induration with a blister, dressing it afterwards with mercurial ointment, and applying a poultice. When the blistered surface becomes dry, and the tumour is diminished in size, the process must be repeated, until no further benefit is derived, when we have recourse to resolving liquids, and pressure, the last of which is continued until it ceases to be of use, when it is suspended, in order that the use of blisters may be resumed.

Although indurated chancre is frequently completely cured by well directed local treatment, the process is generally very tedious, and may in the end be imperfect. The difficulty with which indurated chancre yields to ordinary means, and the good effects resulting from the use of mercurials in its treatment, are the principal reasons why it is considered as the only form of primary syphilis, and mercury as the only cure.

Without engaging in a discussion too extensive for the limits of this essay, I may remark, that, if mercury does not act specifically in this form of chancre, it is most assuredly one of the most powerful therapeutic agents we can oppose to it, and that there is none more rapid in its action.*

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* The reader will acknowledge the truth of this remark, and perceive the principle which guides the author in the treatment of syphilis. He sees that rapidity of cure is his object, and that, wedded to no exclusive system, his whole efforts are directed to

If we set out with the physiological doctrine, that chancre is cured on the day cicatrization is complete, and are heedless of what remains, simple means will sometimes act more rapidly, and the patient be an inhabitant of the hospital for a shorter time; but if the removal of induration be necessary to a cure, the rapidity of such removal will be found greatly in favour of mercurial treatment; for induration in the former case often remains for a long time, and not unfrequently until secondary symptoms appear. Although I acknowledge that other remedies may have analogous properties, still I make use of the most powerful and certain, and have recourse to mercurial treatment, wherever the chancre is accompanied by a certain degree of induration, and when this induration prevents cicatrization, or persists after the superficial healing of the sore. If mercury is hurtful in other forms

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this end, equally uninfluenced by those who regard mercury as a panacea, and those who eschew it as a deadly poison.

Indurated chancre, as a local disease, is of little consequence. As a source of disaster to the individual and his offspring, it is one of the most serious ills to which mankind is exposed. Constitutional syphilis has this form most frequently as its antecedent; the certainty of the occurrence of secondary disease is in the direct ratio of the duration of the primary chancre; the primary sore disappears most rapidly under the influence of mercury; therefore it is not only right to take advantage of the known powers of this mineral, but it is a fault to neglect such a potent remedy. We speak, in general, admitting exceptions. The author attempts no explanation of the action of mercury. It is difficult to understand why secondary eruptions, ulcerations, and diseases of the bones, should be referred to mercurial action, when the identical diseases can, for the most part, be clearly traced to the operation of the venereal poison. When mercury produces mischievous results, the mischief generally commences, and is evident, during the time when it is being administered. The mischief resulting from mercury used to be attributed to the venereal poison, and served only as an indication for "throwing in" the medicine. Even at the present time the hint is not always taken, and many still make an indiscriminate use of mercury. It is sometimes administered with other intentions than the cure of the venereal sore; and I remember a case of phagedenic sore on the *corona glandis*, accompanied by immense swelling of the prepuce, and phimosis requiring incision, where the surgeon administered calomel and opium with the view of reducing the febrile symptoms attending the local disease. It need scarcely be observed, that the sore was not improved, nor the fever diminished by such treatment. It has not been proved that the secondary symptoms, appearing a greater or less length of time after the treatment of a syphilitic sore by mercury, are commonly dependent on the poison of mercury and not on the poison of syphilis. It is not too much to assert, that the mischief dreaded by the anti-mercurialists never results from mercury when prescribed by an intelligent physician, and that most of the ill consequences arising from the use of this invaluable medicine are met with in such as have fallen into the hands of empirics. Accidents, then, from mercury are exceptions to the general rule, and prove nothing. Further, it is ascertained that affections, identical with those attributed to the baneful influence of mercury, are more frequent when the primary disease has been left to undergo a spontaneous cure.

The subject is too extensive to be entered on at length; but it is a fair question to ask, Why secondary disease does not occur in India, where patients are prostrated by the mercury which is given them, and why children escape to whom this remedy is so often freely administered? Because it rarely affects the mouth in the latter class of patients we are not to conclude that they are not mercurialized; for *stomatitis* is not a necessary evidence of constitutional action of mercury, and in no case do we wish our patient to spit out his disease.—G. Bell.

of chancre it is highly advantageous in this, where the excess of induration tends to the production of the phagedenic form of disease.

The rules which guide me in the treatment of chancre by mercury are entirely the result of observation, and form no part of an exclusive system.

Without agitating the question, to what class of medicines should mercury be referred, it is certain, that, among the effects it produces on the economy, there are some which cannot be disputed, and are acknowledged by the upholders of the most opposite doctrines. These effects are pathological modifications and curative results. It is an error to suppose that the dose of mercury is the same for every subject, for there are some who resist its action up to a certain point. There are some persons on whom mercury has no effect, others who are injured by it, and not a few who are cured by its exhibition ;* but this latter fact has not always been acknowledged, and hence the proceedings which, in these latter times, have frequently been taken against this powerful medicine.

Guided by clinical observation alone, I will not conclude that mercurial treatment is useless, because it has been continued for a long time, or repeated without results ; neither will I consider it as hurtful, because, having been administered in doses disproportioned both to the individual and his disease, momentous accidents have occurred. In fine, I do not require of it what it cannot bestow, viz. a cure of present symptoms, and a guarantee against secondary accidents.

In order that mercury may produce all we have a right to expect from it, it must be administered in doses proportioned to the individual treated. The proper quantity for each patient will be discovered, by beginning with a small quantity, increasing the dose until a favourable change is produced in the lesion we are treating, or till adverse symptoms warn us to stop. The increase of quantity, so necessary in many cases, has appeared to me to be more efficacious when a sudden change is made from a small to a large dose,—five or six days being allowed to intervene between each increase,—than when the alteration is daily, and by insensible gradations. From what has been said, the impossibility of limiting the daily quantity of the medicine in every case will be apparent, for the greatest individual differences exist. Further, we are to calculate more on the action of each dose, than on the total quantity taken; for the person who takes a large quantity of mercury, in divided doses, and during a long time, will be less mercurialized, than one who takes in a short space a less quantity in daily doses better proportioned to his constitution,

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* One patient whom we treated for indurated chancre on the inferior surface of the glans, accompanied by bubo in the left groin, took three blue pills daily, and rubbed in a drachm and a-half of mercurial ointment every night, for five weeks, without the mouth being affected, or the digestive organs being in the least deranged. The sore on the glans, as well as the bubo, disappeared under this treatment; and the patient remains well to this time, now two years.

Profuse salivation occurred in another patient, from the administration of two grains of calomel. Many examples of both these idiosyncrasies are on record.—G. Bell.

With regard to the symptoms which should make us limit the dose, suspend the medicine, or altogether renounce its use, they should be reduced to their proper value. Its action on the mouth is now generally considered as much an inconvenience as it was formerly hailed as a favourable event. Mercurial *stomatitis* (ptyalism, mercurial salivation,) should be regarded as one of the worst effects of mercury. If, in some cases, the venereal symptoms improve during its presence, they are more frequently aggravated. This is especially the case when the buccal cavity is the seat of syphilitic disease; and when matters do not become worse, the disease is stationary during the continuance of salivation.

If it is certain, then, that salivation rather tends to suspend than to promote improvement,—that it constitutes a disease of itself, if not serious, at least painful and tedious, we should carefully guard against its occurrence, by ceasing to augment the dose of mercury whenever the mouth begins to be affected. The medicine should be suspended if *stomatitis* is developed, and the symptoms allowed to fade before we resume its employment. On resuming the use of mercury, the quantity should be much smaller at first, augmenting it afterwards; for we frequently find, that in this way a greater quantity may be given without ptyalism being induced.

Sensibility of the mouth being commonly the first indication of the patient being constitutionally affected with mercury, and an event which guides us in determining the dose of the drug, it is a circumstance which must be examined with great care, in order that we may not be led into error by the presence of other accidental affections of the mouth.* Every time we commence the treatment, we should be well acquainted with the state of the cavity, and should take into consideration the unhealthy dispositions, which may rapidly determine the action of the remedy.

Next to *stomatitis*, derangement of the stomach and bowels is the most frequent bad effect of mercurial treatment. Here, likewise, by inquiring into the previous conditions of the patient, we can act according to the rules just laid down regarding the diminution or suspension of mercurial treatment.

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* The value of this advice will be acknowledged, when it is remembered, that while the gums are liable to inflammation, independent of the effect of mercury, and their connection with diseased teeth, an inflammation, or even ulceration, attended by a fetor somewhat like that produced by mercury, is sometimes dependent on the presence of tartar, or even a simple want of cleanliness.—G. Bell.

We should act in the same way in the rare case of mercurial eczema, when it is not a direct consequence of friction, and likewise in every bad symptom at all referable to mercury, such as wandering pains, tremors, &c. In a word, every morbid symptom not belonging to syphilis, developed during the use of mercury, and augmented by its continuance, ought to determine us in limiting the dose, or supending the employment of mercury. But the curative results are better guides than the bad effects of the remedy; and when a symptom is improving under a particular dose, the quantity should not be altered till the improvement ceases.

The preparation I prefer, both in the secondary and primary disease, is the proto-ioduret of mercury, beginning with one grain* in the following formula.

℞ *Proto-iodur. Hydrarg. Lactucarii a. a.* ʒss. *Opii* gr. ix. *Gum. Guaiac.* ʒi. *tere probe. Ft. mas et div. in pil.* xxxvi.

In some patients the dose may extend to six pills daily, and the treatment ought to be continued until every symptom has disappeared. The total quantity sometimes amounts to 200 pills. According to my experience, it is better to exhibit the medicine by the mouth than by the skin; and the latter should only be preferred when the state of the digestive organs prevents our administering by the mouth.

Although I prefer the proto-ioduret, it must be observed, that in some cases the form of mercury should be changed, when that first chosen is inefficacious or productive of inconvenience.

3d. Gangrenous phagedenic chancre from excess of inflammation.—The inflammation which determines this form of chancre, should constitute the chief object of attention, forgetting for a time the primary cause of the evil. What evils have we not seen result from the rash and empirical use of mercury, in cases of syphilis where it was contra-indicated by complications? If gangrene supervene in spite of our efforts, it should be regarded as a simple case, uncomplicated with syphilis, and dealt with accordingly. When these untoward events have disappeared, and the chancre is left in one of the conditions already specified, (generally a simple sore) cicatrization will be produced by ordinary local means.

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* The same preparation is generally used at the Hospital for Cutaneous Diseases in Paris, in secondary eruptions and ulcerations.—G. B.

Art. XI.—*Observations on a method of employing the Ammoniaco-Nitrate of Silver, as a test for demonstrating the presence of very minute quantities of Arsenic.* By Thomas Stewart Traill, M. D. Fellow of the Royal College of Physicians Edinburgh, and Professor of Medical Jurisprudence in the University of Edinburgh. In a letter to Dr Craigie.

Dear Sir,—I now send the promised statement of the method of applying ammoniaco-nitrate of silver, as a test for the detection of minute quantities of arsenic, which I lately had the pleasure of showing to you. It is on the principle of Dr Wollaston's microscopic, chemical investigations, and has been long employed by me as a mode of exhibiting the great delicacy of this test. I prefer it to the method of your ingenious correspondent Dr Murray, because it enables the operator to judge of the nature of the precipitate; as, for instance, whether it separate in flakes, or in uniformly minute particles diffused through the fluid.

I put a drop of the suspected liquid on a plate of clear glass, and near it another of the test; then join them by means of a glass rod, without completely mingling them. In the experiments exhibited to you, the liquid employed was a solution of one grain of arsenic boiled in 1000 grains of water, and by adding determinate proportions of water to portions of this liquid, any fractional part desired was readily obtained.

The following are the results of the experiments which you saw.

1. With $\frac{1}{1000}$ of a grain of arsenic, the test afforded a rich, yellow, flaky precipitate, which on subsidence left the liquid clear.

2. With $\frac{1}{2000}$ of a grain, the precipitate was also very distinct to the naked eye.

3. With $\frac{1}{4000}$ of a grain, the character of the precipitate was distinctly seen by the naked eye.

3. With $\frac{1}{8000}$ of a grain, the precipitate was still distinct to the eye.

4. With $\frac{1}{10000}$ of a grain, attentive observation could still trace the character of the precipitate without a lens.

5. With $\frac{1}{12000}$ of a grain, a lens of moderate power enabled me to observe the yellow flakes in a clear liquid.

6. With the $\frac{1}{15000}$ part of a grain, cloudiness was observed, but I could not be positive as to the shade of colour.

In all these experiments, it aids the eye much to place the glass plate on some dark ground, such as the sleeve of a coat. There is no risk of confounding this precipitate with the phosphate of silver; for none of the phosphoric salts afford precipitates with the ammoniaco-nitrate of silver, though they do with the simple nitrate.

The test now mentioned is far superior in delicacy to the ammoniaco-sulphate of copper; though I have tried Dr Murray's mode of applying it, which is certainly an improvement on the common method.

I may remark, that Dr Murray seems greatly to have underrated the delicacy of the test by reduction. I have repeatedly, by drawing out the stem of a ball-tube to a capillary bore, after the introduction of the sulphuret of arsenic and dry soda-flux, obtained distinct metallic crusts, that did not weigh $\frac{1}{200}$ of a grain; and would always prefer the reduction process to any other, if the quantity were sufficient for this test.

I may here also describe some manipulations in detecting mercury, which I have used for many years. The modifications of the galvanic process of Sylvester which I employ, are 1*st*, Instead of a ring or plate of gold, I use a gilt card. Cover a common card with Copal varnish, and while still wet, lay it on a sheet of gold leaf: the leaf adheres firmly to it, and in a short time is not removable by moisture, but affords, for about a *penny*, a surface of pure gold, which will suffice for some hundred experiments; *2d*, I found that by means of the galvanic process, I could obtain, not only the amalgam-stain, but also metallic globules of mercury, even without the trouble of previously separating the animal and vegetable matter. All that is necessary, is to slightly acidulate the suspected liquid or pulp with muriatic acid; and this prepares it for the test. I use a slip of thin sheet-zinc, a quarter of an inch wide, and two or three inches long; one end of this is coated with gold leaf, by wetting it between the lips, and wrapping it in the leaf, so as to cover about half an inch of its end: Insert this in the liquid, and let it remain from half an hour to three hours, when the gold will be stained with amalgam, if any mercury were dissolved in the liquid. The zinc is to be withdrawn from the liquid, gently rinsed in distilled water, and dried on a glass plate. The remains of the gold, and the tarnished portion of the zinc, are to be scraped off, and introduced into a small tube, in the usual way; the heat of a spirit lamp is then to be applied, and metallic globules of mercury will be sublimed. When there is much mercury present, the zinc, near the gold, often becomes brittle, and yields mercury by heat. On this account, I generally break the zinc so changed into small pieces, and introduce it into the tube with the gold leaf, and sublime as before.

In this way, I have obtained globules from surprisingly small quantities of mercurial salts, and without the trouble of previously clarifying the suspected liquor. The gilt card is an excellent preliminary test.—I am, Dear Sir, truly yours,

THO. STEWART TRAILL.

PART II.

CRITICAL ANALYSIS.

ART. I.—*Leçons de Clinique Medicale Faites à l'Hotel-Dieu de Paris.* Par le Professor A. F. CHOMEL, Recueilliés et Publiées sous ses yeux Par J. L. GENEST, D. M. P., Ancien Chef de Clinique Medicale de l'Hotel-Dieu de Paris, &c. (Fievre Typhoide.) Paris, 1834. 8vo. Pp. 548.—*Lectures on Clinical Medicine, delivered at the Hotel-Dieu of Paris.* By Professor CHOMEL; collected and published under his inspection, by M. GENEST, M. D. (Typhoid Fever.) Paris, 1834. (Continued from Vol. xlix. p. 530.)

THE second tribe of anatomical lesions in fever, or those which are less frequently observed, next occupy attention; and among the first M. Chomel places those of the alimentary canal different from the lesions of the follicles already examined.

§ I. a. *Lesions of the mouth, tongue, pharynx, and œsophagus*, are not very frequent, and appear in only a small proportion of cases. A layer of mucous deposit, more or less dry, or softened, may cover the mouth, tongue, and pharynx; but beneath it the mucous membrane is not remarkably altered. In other cases still more rare there are observed on the pharynx, especially on its sides, ulcerations usually few in number, elliptical, circular, or irregular, generally superficial, resting sometimes on the muscular layer, and never extensive.

The ulcers now mentioned are not ascertained to be the result of any change in the follicles.

The tongue may be occupied by ulcerations either extending along or across the organ, narrow and elongated in shape, and which also are not referable to any follicular lesion.

The ulcerations of the œsophagus are usually superficial, elliptical, and placed longitudinally, most frequently only excoriations; and in which it would be difficult to recognize the effect of lesion of the follicles.

The shape and number of the ulcerations of these several parts vary greatly. In some cases they seem to be connected with the presence of the false membranes covering them; in others they are surrounded with purulent infiltration.

b. The villous membrane of the stomach presents remarkable changes in colour, consistence, and thickness.

a. The colour of the gastric villous membrane presents in subjects cut off by typhoid fever, numerous varieties. It may be either quite pale, or more commonly, of a reddish tint, the intensity of which varies in almost all cases, and is far from being constantly observed in the same points. In some subjects, the whole gastric villous membrane is coloured yellow like that of the duodenum and jejunum,—a tint which, though not always associated with the presence of bile in the stomach, must be ascribed to imbibition of that fluid by the mucous membrane. In some cases even this yellow colouring affects the three tunics of the stomach. The portion of the organ, further, contiguous to the liver, and that in contact with the spleen, presents in the substance of the three membranes the same colour as the surface of these two organs. These differences of colour evidently depend only on the action of physical causes, either after death, or during the last moments of life, and have no influence on the phenomena presented during life. They require merely to be mentioned.

The red shades of colouring, which are very frequent, and which have often been considered as indicating the uniform presence of inflammation of the gastric villous membrane, require more special attention. In one class of cases, the red colouring of the villous membrane is associated with the varicose state of the gastric veins, when the shade diminishes as the membrane is examined at a distance from the largest trunks. In another class of cases, a general vivid redness, not only of the stomach, but of the whole intestinal tube, corresponds with thickening of the walls of the heart, and may be compared to that which is frequently observed in the bodies of persons who have died under the influence of hypertrophy of the heart. *Lastly*, in a third set of cases, this redness is connected with no explicable organic condition; and as it is most frequently accompanied neither with perceptible softening, nor thickening of the villous membrane, it is in the majority of cases impossible to ascertain whether this redness be inflammatory or not. The characters of the redness which remains in the dead body after inflammation, have not been ascertained with sufficient precision to enable the morbid anatomist to say at first sight, whether any given form of redness is of inflammatory origin, or if, on the other hand, it depends on some other cause. To determine whether there have been gastric inflammation, it is requisite to have recourse to the symptoms presented during the days preceding death. It is rare, however, to observe during the last days of the typhoid disorder, while the patient is often in a state of deep stupor or coma, symptoms indicating suffering in the stomach.

In another class of subjects, the gastric villous membrane presents a red colour, more or less deep, approaching sometimes to slate-blue. This is regarded as the indication of chronic *gastritis.* The reflections already made on the difficulty of connecting the colour of the gastric mucous membrane with a morbid state of the organ, M. Chomel thinks are equally applicable in this case; as the slaty colouring is recognized in subjects who, during life, presented no symptom of gastric inflammation, either acute or chronic.

b. Changes in consistence.—In many cases of persons destroyed by typhoid disorder, the mucous membrane covering the large *cul de sac* is softened; in a smaller number the softening occupies a large space of the gastric villous membrane. Lastly, in a few cases the softening attacks the whole three tunics.

In certain cases, the villous membrane is not merely softened, but completely destroyed, and can no longer be recognized; the cellular and muscular tunics are completely exposed; and here and there only are found fragments of the villous membrane in the form of flocks, removable by the smallest stream of water. This state M. Chomel observed twice among the 42 cases recorded.

In other cases the mucous membrane though softened, remains nevertheless attached to the cellular tunic, under the shape of a yielding layer, easily removable by the finger or the handle of the knife. In other cases it is firmer and less easily removable, though its natural consistence is greatly diminished.

Among 42 cases, the history of which was kept, 14 presented softening of one portion of the stomach

occupying in 10 the larger end only *(cul de sac,)*
in 2 a large proportion of the organ,
in 1 the whole villous membrane,
in 1 the substance of the three tunics.
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14

This gives among 42 cases, an amount of 14 in which softening of the gastric villous membrane, more or less extensive, and more or less deep, had taken place; and M. Chomel observes, that it may reasonably appear singular, that a change occurring in so large a proportion as one-third, should be arranged among the tribe of accidental lesions. Though it might, therefore, be imagined that those pathologists who had ascribed to the stomach so important a part in the affection designated by them as severe *gastro-enteritis,* and which he calls typhoid fever, had not in this respect committed so great a mistake as is generally now allowed, yet researches made in many inspections performed in the clinical establishment of late years show the slight importance of this alteration in regard to typhoid fever; as they prove that it is not more frequent in the latter disorder than in most other diseases terminating fatally.

Among 24 persons, for instance, destroyed by peripneumony, in eight cases softening of the gastric villous membrane was observed in degrees as varied as in the typhoid disorder. But perhaps it may be argued, this softening was the effect of the treatment employed, especially tartar emetic in large doses, which is so often employed in extreme cases of peripneumony. To meet this objection, M. Chomel gives the following statements. Among the eight cases which presented softening of the gastric villous membrane, three only took for one or two days tartar emetic in the large dose; while among the other sixteen who did not present this lesion, nearly one-half had been subjected to the same treatment in the same circumstances, whence it results that we cannot ascribe to the influence of this agent the frequency of softening of the gastric villous membrane in the cases of pneumonia, to which allusion is now made.

In *peritonitis* the same relations are observed. Among the cases of acute peritonitis, three presented the form of softening of the gastric villous membrane.

In persons cut off in consequence of small-pox the same proportion is observed in reference to gastric softening. Thus among five patients who during the course of some years died of this disease in the clinical wards, two presented softening of the mucous membrane of the stomach. In one of these, the three tunics of the stomach were affected; and at the time of dissection perforation took place.

From all these facts M. Chomel thinks himself entitled to conclude, that, in the typhoid disorder, softening of the stomach is not a more important or essential lesion than in other disorders, because it is neither more frequent nor more intense. This proposition, he thinks, is perfectly well established, whether we adopt the views of those physicians who, observing that this lesion is preceded or indicated by no peculiar symptom during life, regard it as always the result of a morbid state, and that it is developed during the latter days of life,—on the opinion of those who consider this change as produced during the last moments of life, or shortly after death, by the chemical action of liquids contained in the stomach, upon the membranes of the organ.

c. Changes in thickness.—Thickening of the gastric villous membrane is much less frequent than softening. It is usually observed in the pyloric portion. Attenuation is more common and often corresponds with softening of the villous membrane of the large or cardiac end, where almost exclusively it is observed. Attenuation of the villous membrane is often connected with dilatation of the organ, which induces also attenuation of the cellular and muscular tunics, as thickening of the villous membrane often coincides with diminution of the capacity of the stomach, and in this case also the cellular and muscular tunics are remarkably thickened. Lastly, in one class of cases, without diminution, as without enlargement in the capacity of the stomach, the investing mucous membrane presents either perceptible thickening or attenuation.

With thickening, the surface of the gastric villous membrane is usually covered with small nipple-like eminences, observed most frequently on its pyloric portion, and with numerous *rugae* of a certain extent. The two surfaces, placed in contact by the disposition of these rugae, usually present, even in cases in which the rest of the membrane is white, a red colouring of some intensity.

In those cases in which either a portion or the whole of the gastric villous membrane was softened, death took place on the 7th 9th, 10th, 16th, 17th, 19th, 20th, 21st, 25th, 27th, 28th, 38th, 48th, and 50th days of the disorder; in those in which a part only, or the whole of the gastric villous membrane presented a slaty colour, death took place on the 12th, 20th, 26th, 33d, and 36th days of the disorder; facts from which he infers that softening is observed not only in the bodies of persons cut off in the two first periods of the disease, and that the slaty colouring is not always found in the bodies of those who die at an advanced period of the disorder.

In none of the forty-two cases, the histories of which were preserved at the clinical establishment, were ulcerations of the gastric villous membrane observed. M. Louis found them in four cases; and in these they were more or less multiplied, to the number of twenty or more. These ulcerations were not more than from two to three lines in extent, and they comprised only a portion of the substance of the gastric villous membrane. Most usually they were circular. In two cases they were situate at the anterior surface of the stomach, and in two others near the *pylorus* and the large arch.

c. *Lesions of the Intestines.*—Most of the alterations observed in the rest of the alimentary canal were usually less strongly marked than those of the stomach.

a. The colour of the intestinal canal presented numerous varieties, both in its different shades and in its divisions. The *duodenum* and the *jejunum* were, in most cases, of a deeper red colour than the rest of the intestines, with a yellow shade, which usually diminishes as the part examined receded from the jejunum, but which, in some cases, was continued to the ileo-caecal valve.

The colour of the ileum was often of a bright red, affecting occasionally the whole three tunics, and evincing itself outwardly by arborescent figures, occasionally confined to the villous membrane; and in the last case only, was the free margin of the *valvulae conniventes* red coloured; and in other cases, perhaps, the most frequent, the redness of the ileum was arranged in zones separated from each other by zones of equal size, and in which the three tunics were remarkably pale. Lastly, in a considerable number of cases, the half or the two lower thirds of the *ileum* are of a bright red colour, while the rest was comparatively pale; and, in general, as this portion was situate entirely in the pelvic cavity, such redness is to be ascribed to the influence of gravitation.

The red colouring of the mucous membrane was not more intense around the figured or ulcerated patches, than at some distance from these patches; and even in the three cases in which much purulent matter was found above the ileo-caecal valve, around and at the surface of the deeply ulcerated patches, the part covered by the matter was paler than the rest of the villous membrane.

The colour of the mucous membrane of the colon presented fewer varieties than that of the *ileum*. The colic mucous membrane seldom presented intense redness in its whole course; but often red patches, more or less extensive, sometimes so deep that they resembled ecchymotic patches, were observed.

b. The villous membrane between the follicles, isolated or agminated, in a few cases, presented a degree of softening equal to that so frequently seen in the stomach. Among the forty-two cases already mentioned, three times only was the villous membrane of a portion of the *ileum* found reduced to the consistence of a layer of gum Arabic. In one case the mucous membrane of the whole upper portion of the same intestine was very soft, like a gummy solution.

The villous membrane around the patches was rarely of a consistence different from that of the remote villous membrane; and it was never found softer; but in some cases it appeared firmer, especially in cases in which there was hypertrophy of the submucous and muscular tissues.

The submucous cellular tissue was sometimes slightly softened.

In no case was there induration of the villous membrane, either of the stomach or intestines, sufficient to deserve attention.

c. An important object of inquiry is to determine if there exist any constant relation between the lesions now mentioned, and the symptoms observed during life; in short, if it be possible to connect any particular symptoms with these different lesions.

Here the author remarks, there are two points for consideration. The first is, whether these lesions are developed, as most pathologists think, and as M. Chomel himself thinks as to several of them, only during the last days of life, when all the other symptoms are concealed under the general veil of adynamic or even ataxic prostration and unconsciousness. The second is, whether these changes begin during the first days of the disorder, when the suffering of each organ may be evinced by distinctive symptoms. In the first case, the examination of this question can furnish no positive result. In the second, the object must be to determine if there be any relation between the symptoms observed during life, and the accidental lesions already enumerated.

To elucidate this inquiry, the author declines taking as an example the redness of the stomach and intestines, on account of the difficulty of distinguishing between that which is inflammatory and morbid, and that which is the effect of the passive stagnation of blood in the vessels of the organs; and he selects the softening of the mucous membrane, which by its frequency, especially in the stomach, may seem entitled to the character of a lesion more closely associated with some of the symptoms, and especially the vomiting.

Of the fourteen subjects in whom, after death, gelatiniform softening of the gastric villous membrane was observed, in two only were there fits of vomiting at the commencement of the disease. One of these patients died on the tenth day of the disease; and neither the symptoms during life, nor inspection of the organs after death, afforded any explanation of the unexpected occurrence of death. The second case occurred in a young girl who had a severe attack of typhoid disorder, during the course of which she had frequent fits of vomiting. When she appeared about the fortieth day of the disorder to become convalescent, she was allowed some light soup; but whether some error in distribution was committed, or, as was probably the case, she had clandestinely received food from without, symptoms of indigestion ensued, and she was attacked with vomiting, which continued till death. On inspection the stomach was found very capacious, filled with a greenish fluid, and with slight softening of the cardiac villous membrane.

Not only was vomiting observed in a small number of cases in which the gelatiniform softening was recognized, but this symptom was frequently observed in subjects, in whom on inspection the mucous membrane presented the ordinary consistence. Thus among the twenty-eight persons who did not present this change, there were five who had well-marked vomiting, either at the commencement or in the course of the disorder. From these facts it results that vomiting is not more frequent at the commencement, in the course, or at the end of the typhoid disorder, in subjects in whom gelatiniform softening of the gastric mucous membrane is observed, than in those who present no traces of it; and it is therefore impossible to connect the fits of vomiting with this lesion.

He also observes that the sensibility at the epigastric region was not more distinctly marked in the cases in which there was, than in those in which there was no softening. From all these facts, M. Chomel infers, that the different pathological states of the stomach found after death, either in the shape of injection or softening, or slaty coloration, or thickening of the mucous membrane in subjects destroyed by the typhoid disorder, are not uniformly indicated by any symptom; and that it is impossible to say with certainty, during the life of any patient, whether any perceptible alteration shall be found in the stomach, or what that alteration may be.

The same researches made on the relations between the changes in the intestinal mucous membrane already mentioned, and the symptoms during life, lead him to the same negative results. Even in cases in which softening affects both the gastric and a considerable portion of the intestinal villous membrane, he conceives that there are no facts to show that such a lesion is indicated by any symptoms occurring during life.

d. Bloody infiltration of the Villous Membrane.—On the connection of this lesion with external symptoms, it might be imagined that it would be less difficult to speculate and establish inferences. By most observers it has been confounded with redness of the intestinal mucous membrane; but from this it differs in the circumstance, that the membrane is twice or three times thicker, and that it presents a jelly-like aspect, quite peculiar, as if for instance a layer of black, or red, or rose-coloured jelly were spread over the surface of the villous membrane with its brilliant tremulous appearance. This change is caused by the infiltration of a red fluid into the meshes of the mucous membrane, causing the apparent thickening, and giving it a brilliant, and, as it were, iridescent colour. The proof of this is obtained by pressing with moderate force the handle of the scalpel on the surface of the intestine, when there is seen to exude by the pores of the villous membrane a fluid more or less red, sometimes in abundance, and the tunic recovers at the same time its natural thickness, and sometimes its usual colour.

The space occupied by this lesion varies from four inches to two or three feet. It is always continuous, not occurring in zones, or in dependent parts alone; and it occupies the whole circumference of the bowel indiscriminately, presenting no difference according to the inferior or superior situation of the parts examined.

The colour of the points of the villous membrane presenting this change varies from rose somewhat deep, to dark red. In those cases in which the infiltrated fluid is rose-coloured and diaphanous, the naked eye distinguishes numerous coloured small vessels, the extremities of which, after traversing a translucent layer, seem to terminate at the surface of the membrane.

Among the forty-two cases of persons dead in consequence of typhoid fever, this alteration was observed in seven; and among these two had sustained intestinal hemorrhages before death, a third had discharged blood by vomiting; in two others a considerable quantity of blood was found in the ileum; and in two there was merely bloody infiltration of the mucous membrane without hemorrhage, external or internal; but by pressure it was easy in those as in all the other cases, to cause the exudation of a fluid, which, in some points, possessed all the characters of blood, and which in others resembled serum, with strong red tint. It was not, however, certain that in these two subjects sanguinolent stools had not occurred during life; as they might have escaped observation, as must sometimes happen in hospitals.

From these facts M. Chomel infers that it is difficult not to recognize in cases of this class, a connection between this change in the intestinal villous membrane, and the presence of blood within the intestinal tube, and not to perceive in this organic disposition the lesion which accompanies most of the intestinal hemorrhages. Among the forty-two cases already cited, in six were observed hemorrhages, either internal or external; and among this number, in four subjects, bloody infiltration of the intestinal mucous membrane was found, and twice only this change was not ascertained.

In this department of pathology M. Chomel thinks he has established the accuracy of an important principle, and in some sense the existence of a new fact, or at least a new organic condition. The question of the source of the hemorrhages of the villous membranes, he observes, is one of those on which the researches of modern morbid anatomists have thrown least light, and the anatomical state of the mucous membranes during hemorrhage by exhalation, he repeats, is little known. If it be really established by these observations, that this infiltration is observed in the majority of cases in which intestinal hemorrhage ensues, it is an important fact, the knowledge of which may lead to important practical indications. Intestinal hemorrhages, which are so frequent in typhoid fever, have been usually ascribed to rupture of some vessels of considerable calibre, by the progressive advancement of ulceration. But when the frequency of nasal hemorrhages in the same disease is considered, and when the discharge is observed in cases in which ulceration had not taken place, we must admit, argues M. Chomel, a different organic condition; and this different and new organic condition, M. Chomel thinks, consists in bloody infiltration of the intestinal mucous membrane.

If it be objected that this change is a cadaveric effect or mechanical infiltration produced by the contact of blood with the mucous membrane, he answers that such a view is opposed by the three following arguments.

1. This lesion is observed not in dependent portions of intestine alone; it is always continuous, and is not interrupted at one point and appearing at others; it occupies the whole circumference of the intestine;—all circumstances irreconcileable with cadaveric origin.

2. Were this infiltration simply mechanical, the blood could not alone possess the power of producing it, and the same effect might be expected to ensue as to bile, serum, &c.

3. The author has observed several cases of red infiltration, evidently dependent on a quantity of blood greatly more considerable than that found in the mucous membrane in its natural state, and in which, notwithstanding, matters tinged with blood were found neither in the alvine discharges nor in the intestines.

A further reason which leads him to think that the infiltration is associated with intestinal hemorrhage, is the fact, that it has been observed not only in intestinal hemorrhage, but in other diseases in which it presented the same characters, and was observed in analogous circumstances. Thus it was observed in four subjects who laboured under intestinal hemorrhages, or had during the last days of life bloody alvine dejections. In conclusion, though he does not feel himself entitled to assert that this infiltration is the cause of the intestinal hemorrhage, he is satisfied with showing, by a sufficient number of facts, that in many cases intestinal hemorrhage is conjoined with bloody infiltration of the intestinal mucous membrane, and that if this lesion do not make known the cause of these hemorrhages, it presents the anatomical condition, under the influence of which these discharges most frequently take place.

There is no doubt that the facts now adduced are important materials in illustrating the nature of intestinal hemorrhage particularly, and of hemorrhage of the mucous membranes in general. But M. Chomel is mistaken in supposing that these facts are altogether new. Such, doubtless, they may be to his countrymen and pupils. But the state of the intestinal mucous membrane in persons destroyed by hemorrhage, was illustrated by dissection many years ago in this country by Dr William Stark and Mr Abernethy, and the subject had also attracted the attention of Portal and Bichat. That we may not interrupt the continuity, however, of the present account of the researches of M. Chomel, we reserve what we have to adduce on this point for the Medical Intelligence.

e. Matters contained in the Intestines.—The fecal matters are almost always liquid, tinged with bile, and mixed with intestinal mucus. They may, however, be more consistent, especially when the patient dies towards convalescence; and in other cases they are mixed with blood when intestinal hemorrhages have taken place shortly before death, or the intestine contains pure blood, as happened in the case of a girl who died on the 12th day, and in whom the end of the ileum, the colon, and rectum, were almost completely filled with pure blood, which was retained within the bowel by three or four scybalous masses of excrement, which were situate within the sphincter, and completely closed the orifice of the rectum. It was not ascertained in this case whether the alvine discharges had been bloody or not.

In some subjects lumbricoid worms (*Ascaris lumbricoides*) are found in the different portions of the *ileum*. The *Trichocephali* are met only in the *cæcum*, and when sought for carefully are almost uniformly found in that situation.

§. II. *Lesions of the Spleen.*—Next to the intestinal follicles, the spleen was most commonly found in a morbid state. In almost all cases its size was greater than in the natural state,—varying from enlargement scarcely perceptible to double, three times, four times or even above this, its natural dimension. In about half the cases it was twice as large, and in two cases only four times as large as natural.

In a certain number of cases the spleen, with enlargement, undergoes a singular change in consistence. In the number already specified, it was ten times found more or less softened, and three times it was completely different. This state was observed in persons dead on the 13th, the 21st, and the 27th days of the disease, so that he thinks that this softening of the spleen is not connected with any precise period of the disease. In other cases, instead of softening, it was much firmer than natural; but this is a rare occurrence, and did not take place in more than one instance.

The spleen is at the same time changed in colour; but M. Chomel was unable to connect the shades of this change with any thing specific, either in the change of size or of consistence.

These different alterations in consistence, volume, and colour, he was further unable to connect with any peculiar symptom, or any form of the typhoid disorder; and as these changes are greatly more frequent in this disorder than in any other, as the researches of Louis had already shown, he thinks they manifestly belong to the typhoid disorder itself, although it be impossible to explain the mystery of the concatenation by which lesions so different are observed in this disorder.

In this circumstance, we conceive the views of M. Chomel are perfectly well founded; and perhaps his extreme caution, in not carrying his inductions a single point beyond what well established facts permit, leads him to speak with much less confidence than might, under other circumstances, be perfectly warrantable. As a proof that the softening of the spleen, with various tints of a wine lee colour, is by far the most constant lesion in typhoid fever, we may add, that in this country, in which we almost never find the intestinal follicles enlarged, figured, ulcerated, or otherwise disordered, it is rare to open the body of a person dead of fever, and not find the spleen in various degrees of mollescence and pulpy disorganization. In the cases in which it was examined in the Royal Infirmary of this place, as appears by the Reports of Dr Craigie, published in this Journal, [Vol. xlvi. 1. and xlvii. 285,] it was found more or less softened in every instance but one; and we may add, that since the period referred to, the organ was found in different stages and forms of mollescence in all those cases of typhoid fever, in which the body has been examined after death, except one.

§. III. *Lesions of the Liver.*—The only lesions usually observed in this organ in typhoid disorders, deserving special attention, is softening. In a certain number of cases its texture is simply less resisting than that in the natural state. In others, the mollescence is more evident, and the finger easily enters the substance of the gland.

§. IV. *Lesions of the circulating system.*—In considering these, M. Chomel directs attention, *first*, to the changes in the blood found in the dead body; and, *secondly*, to the morbid states of the heart and large vessels.

a. The changes observed in the blood after death in the typhoid distemper, differ so widely from those usually observed after that in other diseases, that they deserve particular attention. Most usually it is black, completely diffluent. Rarely are some fibrinous clots found in the heart, and more rarely in the other blood vessels. In other cases the blood, without being quite diffluent, appears in the heart as in the aorta, in the form of black clots, very different from those observed in the bodies of persons destroyed by other acute affections. The absence of fibrine in the blood of persons cut off by the typhoid disorder is the most striking, and perhaps the most important change observed in this fluid; and it accords perfectly with what is observed in the blood drawn from the veins during life. Among thirty cases, in which the blood contained in the heart and large vessels was carefully observed, there were found

fibrinous clots small and few in -	6 cases,
black clots almost all consistent in	9 .
black fluid blood in -	15
	30

Fibrinous clots, therefore, were wanting in four-fifths of the cases; and in two cases, in which fibrinous clots were found in the heart, there were traces of acute inflammation, which had ensued as a complication of the primary disorder,—one, a case of perforating *peritonitis*, the other, a case of rose of the face.

Another change sometimes, though more rarely, presented by the blood of persons destroyed by typhoid disorder, is the developement of more or less air within the blood vessels, and especially the veins. If a large vein be exposed at a point where it receives no branches, there are sometimes seen bells of air moving through the thin and almost diaphanous membranes of these vessels. In these cases, which M. Chomel thinks approach, in this respect, to those in which individuals perish by asphyxia from the mephitic gases contained in necessaries, or by carbuncular affections, the blood presents other marks of advanced decomposition. Sometimes it resembles coffee-grounds mixed with an oily liquid, which is about to be separated.

In the cases in which the blood offers, after death, these undoubted signs of decomposition, there are often observed during life large bluish spots, similar to those which result from scurvy, or a violent contusion, and even petechiæ, or those minute spots which are so analogous to flea-bites, and which are owing to bloody infiltration in the tissue of the skin, while in the large bluish patches of blood, the blood is usually infiltrated into the subcutaneous tissues. He thinks it probable, from various circumstances, that these alterations in the blood, and the tendency to decomposition, were already in existence during life ; and adduces, as a good example of this, the case of a girl of 18, in whom the blood drawn during life scarcely separated into clot and serum, and in whose organs after death it was found dark-coloured and diffluent.

b. *Changes in the Consistence of the Heart and other Organs.*—In many cases, the consistence of the walls of the heart was found remarkably diminished, and in no case did it seem to be increased. In some cases the softening was so marked, that the muscular substance of the heart broke down with the greatest ease between the fingers, and under very moderate pressure. In other cases it was difficult to recognize softening. In general, the diminution in the consistence of the muscular tissue of the heart corresponds with softening of the spleen, of the liver, &c.

Associated with softening was a degree of flabbiness so great, that its walls collapsed, and the cavities of its chambers were obliterated exactly like a membranous pouch. The following numerical statements show the frequency of this lesion.

Among thirty cases, in which the consistence of the heart was carefully noted,

Slight softening and discoloration of all the tissues was found in - - -	4 Cases.
Softening and discoloration of the left ventricle only in	3

Discoloration without softening in - -	1
Flabbiness without softening in - -	7
Normal state in - - -	15
	30

This softening and flabbiness of texture in the heart were especially observed in the bodies of persons who died shortly after the developement of the disorder. In one case, however, death took place on the forty-fifth day. Flabbiness and the normal state are especially observed in the bodies of those who die at an advanced stage of the disease. But on this point it is impossible to establish a positive rule.

c. *Changes in Colour.*—The colour of the inner membrane of the heart presented remarkable variations, which were often different on the two sides. In some the natural redness was brighter, in others deeper and more livid. Most commonly the inner membrane was almost decolorized, especially in cases with softening. In no case did this membrane present characters peculiar to inflammation; and it never exhibited purulent matter, or the false membranes, or granular aspect, which are the only unequivocal marks of the inflammatory process.

The uniform redness of the inner membrane of the heart and large vessels, which has been considered as the sign of inflammation of these tissues, and to which the phenomena of inflammatory fever have been ascribed, he looked for without success in the most of the cases. In some cases the inner membrane of the heart alone presented a vivid red colour, while that of the aorta and large arterial trunks retained its natural whiteness. In the only case of the forty-two persons who died under distinct inflammatory symptoms, before the lesions which induce the adynamic state could have obscured those of the inflammatory, a vivid redness was observed in all the chambers of the heart; but this redness ceased at the origin of the aorta, which, with the large arterial trunks, presented nothing abnormal either in colour or thickness. Several times, indeed, M. Chomel found the inner aortic membrane presenting abnormal redness; but the characters of this redness by no means indicated it to be of inflammatory origin. In no case could it be traced to capillary injection; and it seemed rather to be the result of tinging or staining, from imbibition of the most fluid part of the blood. The principal character to distinguish this as a pseudo-morbid appearance, is the fact, that it does not occupy the whole surface of the aorta and arteries,—that it is only in patches, or rather little bands,—that there is never perceptible thickening or roughening of the inner membrane,—and that the red colour disappears much sooner by maceration than in the case of inflammatory redness.

He concludes that the flabbiness and softening of the heart observed in the bodies of those destroyed by fever is not the result of inflammation, and, he thinks, that though it is closely connected with the softened state of the liver, spleen, and other internal organs, yet, in the present state of knowledge, it must be confessed that the cause which induces these different forms of softening is altogether unknown.

§. V. *Lesions of the respiratory system.*—These vary according to the organ in which they are seated.

a. The *epiglottis* was in some cases affected with œdema, in others with ulcerations and denudation of the cartilages. In about twenty cases in which this organ was carefuly examined, three times did it present this change.

The superior aperture of the larynx and the larynx itself have in some cases been observed to be the seat of ulcerations analogous to those already noticed as found in many other organs. These ulcerations are various in depth, and occupy different points. M. Chomel met with one remarkable example, with symptoms of quincy and obscured or husky voice, and latterly great *dyspnœa.* There were found on inspection after death at the upper part of the larynx, many minute pustuliform eminences containing matter, but without *areola* or inflammatory circle, and seated, according to him, in the submucous tissue. The absence of *areola* is one reason why, with anatomical considerations, M. Chomel cannot allow these pustules to be seated in follicles, and he is disposed to regard them as metastatic abscesses.

b. *Changes in the lungs.*—These were numerous; but they presented a character not uniform, and which, according to M. Chomel, did not modify the disease in a determinate manner. Those most frequently observed ensue only during the latter days of existence; and of this kind is the congestive obstruction which precedes death. This M. Chomel ascribes entirely to the influence of physical laws, which operate more forcibly as the strength of the patient declines with the progressive advancement of the distemper. In a certain number of cases, this congestion is accompanied with remarkable softening, in consequence of which the finger easily enters the tissue so softened. In some other cases less numerous, it consists in simple congestion depending on the stagnation of fluids, in which all the characters of pneumonia in the first or second degree are recognized; and in this class of cases it is not uncommon to observe rusty expectoration; and often, when the chest is carefully examined daily by auscultation, the presence of fine dry crepitous rattle proves that pneumonia is now complicating the primary disorder.

This pneumonic attack may be confined to some lobules forming *lobular pneumonia*, when it appears most frequently in the stage of suppuration, and presents all the characters of metastatic pneumonia. This form occurred in three among forty-two cases. In another order of cases, the pneumonia, without being confined to some lobules, may affect an entire lobe; and in this order of cases the patient is usually destroyed before the disorder attains the stage of suppuration. In certain circumstances an emphysematous or œdematous state of different parts of the lungs; and, lastly, in other cases pleuritic effusion, more or less considerable, were observed; but these several changes, he maintains, have a very remote connection with typhoid fever, and he ascribes them to the state of feebleness to which the patient is reduced, which induces a great susceptibility to the operation of morbific causes. The complications now specified were found only in patients who died at a remote period from the commencement of the disorder.

The bronchial tubes present remarkable varieties in coloration. In general they are red, sometimes violet-coloured; and this colouring becomes usually more deep, as the examination is continued, towards the last divisions. They also contain mucous matters resembling the sputa excreated by patients during life. In the following table, the state of the lungs is indicated in the bodies of forty-two persons.

Obstructive congestion alone, or with softening, in	18	Cases.
Hepatization in the first degree, in - -	3	
Hepatization in the second degree, and one side only, in	2	
Lobular pneumonia in - - -	3	
Emphysema of the lungs in - -	2	
Œdema of the lungs in - -	2	
Pleuritic effusion in - - -	2	
Normal state in - - - -	10	
	42	

§. VI. *Alterations in the Brain and its appendages.*—Though the headach with which fever is commenced, and the delirium with which its course is accompanied, would lead to the expectation that in this organ, or its investments, important lesions would be found, yet any changes which it presents in the dead body are by no means the most conspicuous. The delirium which is so frequent in typhoid fever, that it appears in more than one-half of the persons destroyed by the disease, most frequently evinces in the brain no perceptible lesion. In a certain number of cases, indeed, there are observed two conditions of these organs which show a decided deviation from what is accounted their normal condition, viz. œdema of the *meninges*, and sanding of the brain. But as these conditions are as often observed in cases in which there is no disorder in the encephalic functions, as in cases in which there is, and as they are as frequent in other diseases as in the typhoid disorder, no conclusion can be deduced from the circumstance.

a. *Changes in the membranes.*—The only remarkable alteration observed in the membranes is the serous infiltration of the *pia mater* and the arachnoid membrane, most frequently occupying the parts covering the hemispheres, in other cases found also towards the base.

The congestion observed in these membranes he represents to be seated ordinarily in the venous system, the large trunks of which are much distended; and in some cases this congestion may proceed to the length of extravasation, of which M. Chomel mentions one case, (18th,) where it occupied the two sides of the hemispheres, and in a smaller degree the base of the anterior lobes.

b. *Changes in the Brain.*—This organ, M. Chomel thinks, is still less frequently changed than the membranes, very often, indeed, it is found slightly pointed. But as it results from the labours of M. Louis, and from his own researches that this lesion is found indiscriminately in the most different states, and in the majority of acute affections, he thinks it evident that it must depend only on a very transitory cause, which acts probably during the last moments of life, and that, if this lesion had produced any particular symptoms, they are confounded with the last phenomena of life, when the physician can very seldom observe.

The same may be said of a slight degree of softening, sometimes presented by this organ in all its parts, and which M. Chomel thinks may in this respect be likened to the softening of other organs, already noticed as common in this disorder, viz. the spleen, heart, liver, &c.

In some cases the brain appears firmer than natural; but this, if it be a morbid change, it is impossible to connect with any period of the disease.

The following table exhibits a view of the numerical proportions in which the different lesions of the brain and its investments were found in thirty-eight cases, in which the state of the organ was carefully examined.

Injection of the *meninges* in - - - -	4 Cases.
Œdema of the *meninges* in - - - -	7
General and slight softening in - - -	6
Effusion of serum within the ventricles, varying from a tea-spoonful to a table-spoonful, in - -	12
Sandy state of the cerebral substance in - -	5
Unusual density in - - - - -	2
Normal state in - - - - - -	15
	—51

§. VII. *Emphysema*, or the presence of air in the cellular tissue, is in some rare cases found in the bodies of those destroyed by fever. If it were developed long after death, it could give rise to no inquiry. But as it has been observed to ensue a few hours after death, and when other bodies placed in the same circumstances presented no similar phenomenon, M. Chomel thinks that the nature of the disease proving fatal, combined certainly with other unknown causes, is not unconnected with the sudden production of a large quantity of gas in the economy, or, to speak more accurately, with the rapidity of decomposition of the dead body, of which cadaveric emphysema is one of the earliest phenomena. This opinion he adopts on the strength of two reasons.

The first is, that typhoid fever is one of the diseases in which this *emphysema* is most frequently observed. For a space of six years it has appeared only twice in an exquisite form in the clinical wards of the Hotel-Dieu, and the two patients died of typhoid fever. Some other sorts of death, nevertheless, present a similar effect. Thus it is observed uniformly as a consequence of the asphyxia of the necessaries, and frequently after carbuncular and pestilential diseases; but it appears that it is more frequently observed after the typhoid disorder, than after other acute diseases which are developed spontaneously.

The second reason which induces M. Chomel to adopt this opinion is, that, even in the bodies of many persons dead of this disorder, before they present well-marked emphysema, incipient decomposition, which is much rarer in the majority of other diseases, is nevertheless remarked.

In other respects it is quite uncertain whether this emphysema is owing to the decomposition of the blood, or of the tissues themselves.

III. On the Etiology of the Typhoid Disorder.—M. Chomel next proceeds to consider the causes of Typhoid Fever, which, after some remarks upon the obscurity in which the immediate cause, that is, the one whose immediate action upon the economy is followed by the febrile symptoms, is involved, he distinguishes into two general categories; 1*st*, Occasional causes, and 2*d*, Contagion.

§. I. In considering the first class of causes, M. Chomel observes that physicians have often, in asserting their operation, and estimating their influence, been guided by theoretical, that is hypothetical ideas, rather than by strict observation; and in establishing their different etiological doctrines, they have generally begun by attempting to establish some definite notions on the nature of the disease. Thus those who ascribed all fevers to a putrid alteration in the fluids, to an adynamic state of the organism, in short, to what the English physicians term debility, have thought requisite to admit as causes of fever, all debilitating circumstances, or those which favour putridity; and hence misery, famine, unseasonable blood-lettings, profuse hemorrhages, corporeal fatigue, and mental distress, have been all recognized as causes acting on the unfortunate beings who are crowded in badly aired places. On this principle have these reasoners, he observes, explained the occurrence of fevers among sailors in ships, among soldiers in barracks, and among medical students in hospitals. With regard to the last, however, he observes, that the time spent in the hospitals cannot be considered as the predisposing cause of typhoid fever, to which they are so subject at the commencement of their studies, since they are most commonly attacked during the first year of their abode, whereas they apply to their clinical studies most ardently during the second or even the third year.

A singular error to which these hypothetical notions have led, he justly remarks, is that of representing old age to be a predisposing cause to fever;—a conclusion adopted from *a priori* views, in accordance with the principle that debility predisposes to fever; but which is altogether contradicted by fact and observation. It is well established that old age, far from constituting a predisposition to fever, is, on the contrary, a condition which rather diminishes the proneness to that disorder.

The physiological physicians also, who regard all febrile disorders as inflammatory attacks in the alimentary canal, he observes, have, consistently enough, regarded as causes of fever all those circumstances which they believed could irritate the digestive passages, or disturb the alimentary function; and hence errors in regimen, the sudden change in food and drink induced by change of residence, the use of fermented, and especially spirituous liquors, the employment of emetics, of purgatives, and all irritants of the gastro-enteric membrane, were equally considered as causes powerfully disposing to fevers, and even often adequate to induce them.

The following tabular view of the antecedent circumstances in 115 cases of typhoid fever, where the state of the patient's intelligence enabled the reporters to obtain correct information on the causes to which their disorder was ascribed, he gives, to show the fallacy of the generally admitted notions on the etiology of this complaint.

5 persons ascribed their disease to the sudden impression of cold when overheated.
5 to want, or the bad quality of their food.
4 to melancholy mental emotions.
5 to debility induced by previous diseases.
3 to the action of a purgative taken for illness.
1 to excess in spirituous liquors.
5 to extreme fatigue, to exertions above the strength.
2 to an intense physical shock.
1 to insolation.
5 presented circumstances favourable to contagion.
—
36
79 blamed no perceptible cause.
——115

This table shows that scarcely one in four ascribed his disease to the influence of any powerful agent. The small number of those who imputed the attack to irritation of the intestinal passages is particularly striking. Three persons only had at the outset of the disorder taken purgatives; but this by no means proves that these medicines determined the formation of the typhoid disorder; and it must be allowed to be more probable that the indisposition for which the purgatives were taken, were the preliminary, or the incipient symptoms of the disorder.

To show by contrast that the vagueness in etiology is not greater in fever than in other acute diseases, M. Chomel gives a similar table of the alleged antecedent circumstances in the cases of 137 instances of peripneumony.

Among 137 persons attacked by *pneumonia* or *pleuripneumonia*, on which exact information was obtained,

117 were attacked with *pneumonia* for the first time, and 20 persons had already been attacked once or several times.

It was then found as to other circumstances, that

28 stated that they had been attacked under the influence of cold during intense heat.
24 in consequence of pulmonary catarrh.
6 after violent exertion, but without perceptible chilling.
4 in consequence of excess in the use of spirituous liquors.
3 females under the influence of amenorrhœa.
1 under the influence of the puerperal state.
1 in consequence of blows and contusions.
68 without perceptible cause.

The first point deserving remark in this table is the small number of pneumonic attacks in consequence of exposure to cold, and how large, on the other hand, is the list of those in which no perceptible cause can be assigned. It is nevertheless easy to recognize in the etiology of *pneumonia* the operation of certain occasional causes, not found in the typhoid disorder. Thus the number 28, denoting the number of persons who ascribed their pneumonic attack to the operation of cold, by which they had been surprised when overheated, is too large to allow it to be regarded as the result of chance; and it is impossible to doubt that, in this class of cases, exposure to cold in the overheated state had a certain effect in the production of the disease. The table of the alleged causes of typhoid fever furnishes no number so elevated as to justify from it the same deduction.

The influence of antecedent disorders furnishes also an important point of contrast between these two diseases. Thus the presence of pulmonary catarrh was in twenty persons a predisposing cause of considerable energy. Nothing of the same kind is observed in the persons attacked by typhoid fever; and all, with the exception of ten, were in the enjoyment of perfect health at the time at which they sickened; and for the majority of them it was the first time in their lives that they were confined to bed. Lastly, if we compare the ages of the individuals attacked by these two diseases, it appears that typhoid fever attacks chiefly young persons, pneumonic persons of all ages indiscriminately.

These facts show that the etiology of fever presents some peculiar circumstances, not found in any of the inflammatory disorders, with which it has been wished to class it.

The last difference to be remarked is the number of persons who had already been affected with pneumonia at least once, and of whom some stated that they had been attacked the tenth or twelfth time. In typhoid fever, on the other hand, whatever care was observed in interrogating them upon this point, among 130 persons received into the clinical establishment attacked with this disorder, and one gave such a statement as could lead to the presumption that he had ever before laboured under the disorder. On the contrary, most of them asserted that it had been the first time they had been ill.

From all these facts, M. Chomel infers, that there is a remarkable difference in the article of occasional and predisposing causes between the typhoid disorder and inflammatory diseases.

Hitherto the information in the etiology of the disorder is chiefly of a negative nature. To procure positive results, M. Chomel inquires into the relations between fever and age, change of residence, misery and public calamities.

a. *Age.*—This circumstance always presents uniform numerical results. The following table gives the ages of 117 patients into the clinical establishment:

8 were from	15 to 18 years.
25	18 to 20
36	20 to 25
30	25 to 30
9	30 to 35
3	35 to 40
5	40 to 50
1	at 52

By comparing this table with the results obtained by M. Louis and some other observers, M. Chomel thinks that it may be established that the most common period of life for attacks of typhoid fever is from the eighteenth to the thirtieth year; that it is rarely observed beyond forty years; and that perhaps no case has yet been observed where the patient was beyond fifty-five years.

On this point we have to observe, that though the first and most general part of the conclusion is quite correct, yet the latter part is, in this country at least, open to sundry exceptions. To show the uncertainty of these conclusions, we have only to refer to the report of Dr Craigie, already mentioned, in which it appears that among a number of persons, amounting to 343, admitted with unequivocal symptoms of fever into the Royal Infirmary of Edinburgh, not fewer than 25, or 1 in nearly 14, were between the ages of 50 and 60, and 7 between 60 and 70.*

Regarding the years earlier than those specified in the table of M. Chomel, the author is prevented from giving accurate numerical statements, from the circumstance that all patients below the age of 15 are conveyed to the *Hôpital des Enfans.* He thinks, however, that he is entitled to say in general that the number attacked continues to diminish to the age of 10, and that under this age children are very rarely attacked with this disorder. On this point we would again refer to the reports already quoted, from which it appears that in the number of 343, thirty-one cases below the age of 10 years were admitted, and between 10 and 20, ninety-eight cases were admitted.

Agreeably to the facts already specified, M. Chomel justly infers that typhoid fever is most frequent in that period of life during which the strength is most fully developed. This demonstrates at once the error, into which those pathologists have been betrayed, who consider advanced age as one of the most favourable conditions to the formation of adynamic and ataxic fevers, and it also proves very clearly, in opposition to another current etiological dogma, that debility has, as a predisposing cause, much less concern with fever than is generally imagined. In one sense, every disease and every fever is a state of debility; but when it is evident that fever is not only most prevalent among the young and vigorous adult part of a community, but betrays its existence and effects by inflammatory processes, it is manifest that this doctrine would require to be very much modified indeed, before it can be regarded as consistent with fact. The cases of alleged fever in the old, M. Chomel thinks, must be regarded as instances of spontaneous inflammation, which have been distinguished only since organic lesions have been studied with greater care. This remark is perhaps not altogether without foundation; for we have seen cases both of *pneumonia*, pleurisy, and diseased heart referred to the head of fever; and perhaps it is not in patients in advanced age only that practitioners commit these mistakes.

b. *Acclimatization.*—Under this name, which was originally applied by physicians who wrote on the diseases of the equinoctial regions, to designate a change supposed to be effected in the European constitution by residence in countries within the tropics, M. Chomel considers the influence, real or imaginary, which is represented to take place in the constitutions of natives of the provinces and country, in consequence of a residence, longer or shorter in duration, in the metropolis, or any large and densely peopled city. It has long been observed that most of the persons admitted into the hospitals labouring under fever had been only a short time in Paris. M. Chomel gives the following table of the length of time from which each of 92 persons attacked had been resident in Paris.

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* Edinburgh Medical and Surgical Journal, Vol. xlvi. 35, and xlvii. p. 329.

5 were in Paris less than - 1 month.
10 had been in Paris from 1 to 3
9 - - - 3 to 6
21 - - 6 to 12
19 - - 12 to 2 years.
15 - - 2 years to 6
11 - - from above 7
2 were resident since birth in Paris.

From this table it results that, among these 92 persons, 64, that is more than two-thirds, resided in Paris for less than two years.

The condition of recent residence, however, in large cities, is not, he is obliged to admit, indispensable. Here and there are seen individuals, who, without having undergone the influence of the supposed acclimatization, are nevertheless attacked by typhoid fever; the list comprehends two persons, who, being born in Paris, could not be subjected to this change; and the inhabitants of large cities must be regarded as exempt from it.

With regard to those who have recently arrived in Paris, or who have been a few months resident in it, various causes appear to operate on their economy. A certain change in the mode of life, in the kind of food and drink, in the periods at which it is taken, and in the hours of repose, the crowded state of the houses in which most strangers, especially of the working classes, live, the imperfect ventilation of the places in which the day is spent, or the daily occupations are carried on, sometimes a degree of regret for quitting home and domestic habits, and occasionally the pursuit or abuse of pleasures of various kinds, all contribute to induce both in the corporeal and mental constitution a great and unfavourable change.

M. Chomel, however, while he admits the fact, and the operation of this acclimatization, acknowledges that he can neither define it, nor explain its source or mode of operation.

He thinks it not unreasonable to compare the influence thus supposed to be exercised upon the human frame and functions, with that also supposed to be exercised by the burning climates of the equinoctial regions, on the frame and functions of the European. But while it is impossible to deny that Europeans are liable, in the intertropical countries, to attacks of fever, it by no means follows, that, in consequence of long residence, they become less liable; and we fear it is not quite philosophical to employ, in the explanation of one obscure set of facts, assumed principles which are not well established, and facts which do not always rest on solid foundations.

Among other conditions which have always been considered as exercising great influence on the production of the typhoid distemper, and which are probably accessary, some, although they may have been exaggerated, ought not, however, to be overlooked; and others he regards as almost foreign to the production of the disorder under consideration.

Among the first may be specified periods of scarcity or dearth, of general distress, and all the analogous circumstances which seem to contribute to the formation of typhoid fever, rather by the troublesome influence which they exert on the moral constitution of mankind, than by their mere physical effects.

Among circumstances of the second order, that is, those which M. Chomel thinks exert almost no influence on the production of the typhoid distemper, is delivery, or the puerperal state, which has been considered as a powerful predisposing cause. The idea that puerperal fever was merely typhoid fever, or fever with typhoid symptoms, originally proposed in this country by Mr Pitt Walsh in 1787, and taught with more or less confidence by an eminent obstetrical Professor in this country, was readopted and revived, apparently without being aware that it was previously taught, in the year 1829, by M. Tonellé, who represents, in the puerperal epidemic of the Hospital *de la Maternité*, a form of fever, which he calls typhoid, to have been by far the most frequent that occurred. It is, nevertheless, quite clear to any one acquainted with the respective symptoms and progress of puerperal fever and typhoid fever, who peruses the account of M. Tonellé, that this resemblance was only apparent and fancied, and that the symptoms to which that author applied the name of typhoid were merely those of puerperal *peritonitis* and *hysteritis*, or those of *phlebitis*, when, morbid products being formed, the symptoms of oppression of all the vital organs imitate the extreme and mortal debility of typhus. These differences have not escaped the observation of M. Chomel, who rejects this vague and loose manner of confounding diseases, which agree only in their concluding symptoms and fatal termination. It is not more extraordinary, he says, to see the adynamic state accompany an attack of puerperal *peritonitis*, or uterine *phlebitis*, in women recently delivered, than to see this state complicate the pneumonic attacks, and some other inflammatory discrders in old men; and the reasons for calling the former typhoid fever are not better than those for calling the latter by that name.

In confirmation of the accuracy of the reasons here assigned, he adduces also the evidence of necroscopic inspection, from which it results, that neither in the 220 inspections reported by M. Tonellé in the Paris Hospital, nor in the forty-four given by Dr Lee in London, were any of the marks or appearances found in the intestinal tube, which M. Chomel considers as proper to fever. This argument is conclusive so far as relates to typhoid fever in Paris. In this country, and indeed in both countries, we would allow the evidence to rest upon the fact, that whereas in all well-authenticated cases of inspections of females destroyed by puerperal fever, these are marks of uterine or intestinal *peritonitis*,—marks of ovarian inflammation and suppuration,—marks of inflammation or suppuration of the Fallopian tubes,—or marks of inflammation of the womb, or of its venous canals ; such appearances are never found in the bodies of females destroyed by typhoid fever. In short, we never could comprehend how any person who had inspected the bodies of two or three females dead of puerperal fever, could regard that disease as the same with typhous fever ; and we believe, that the whole of this doctrine originates in total ignorance of the two disorders, and their characteristic phenomena and effects.

M. Chomel next enters upon the consideration of the question of contagion ; and here it appears that the majority of physicians in France deny all communication of the disease by contagion, and those who believe in the existence and operation of this principle, he estimates at not more than one in the hundred. The reasons on which the non-contagionists build the force of their doctrines he states in the following terms.

1. Persons are observed daily to minister to individuals labouring under typhoid fever, and though placed in circumstances most favourable to the transmission of the disease, nevertheless are not attacked. Those even who, by the nature of the duties which they perform to the sick, as nurses, by the assiduity with which they continue with them during the whole course of the disease, are most exposed to inhale the *miasmatu*, (effluvia), which the typhoid patients exhale, are never attacked by the disorder.

2. In hospitals where there is no bed, which has not been used by some individual affected with the typhoid disorder ; where it seldom happens that there are not constantly, at the same time, in each ward, several individuals labouring under the disorder, it is not observed that the patients placed next these fever patients, the persons who minister to their necessities, or those who succeed them, who lie on the same mattress, and use the same bed-clothes, are attacked by the disorder.

3. Sometimes a person admitted into the Paris hospitals for a disease different from fever, is attacked while there by this disease ; but these cases are extremely rare, and prove nothing in favour of

contagion. Scarcely, in the course of several years, are one or two occurrences of this kind observed to take place in the clinical wards of La Charité, or the Hotel Dieu, and it cannot be pretended that the persons admitted into hospitals are there protected from the causes which produce this disease.

These, which form the principal arguments adduced by physicians, who do not allow the contagious propagation of fever, were generally admitted without objection among the French physicians, till the year 1829, when M. Bretonneau announced and defended an opposite opinion. It may be observed, that all of them imply a practical disbelief in the existence, and a disregard of the effects of contagion in the hospital arrangements for fever patients; for no attempt is made to separate from patients labouring under ordinary medical diseases, those who present symptoms of typhoid disorder, either incipient or confirmed. The metropolis of France possesses as yet neither fever hospitals or fever houses, nor are separate wards allotted in the Paris hospitals for the reception of patients labouring under febrile symptoms. Even from these circumstances, however, M. Chomel deduces inferences which show that the arguments of the non-contagionists are not in every respect logical and conclusive.

In the first place, he denies the accuracy of the statement that nurses, relatives, and physicians communicating, or in contact with individuals labouring under typhoid disorder are never attacked. The examples of transmission of the disease, though rare, are not unknown; and this rarity depends on circumstances important to be specified.

The first is, that of all the persons communicating with fever cases, few are susceptible of contracting the disorder. The father, mother, physician, nurses, and many of the hospital patients are protected from contagion, either because the most of them are past the age when the typhoid distemper most usually appears, or because they have been already attacked by it, or because, in short, they are in the number of those who are constitutionally, or physiologically insusceptible of its operation. He thinks that, as most of the male and female attendants in hospitals are taken from the number of old patients, and as these seldom present the conditions in which the disorder is most usually engendered, the immunity which they are said to enjoy, though continually exposed to the disease, ought not to be matter of wonder.

Another circumstance which must counteract much the facility and frequency of transmission of any disease, but especially of typhoid fever, he very properly remarks, is the cleanliness and perfect ventilation observed, he tells us, at present in the Paris hospitals, where the persons attacked with the typhoid disorder are never united either in the same establishment or in the same ward, and where their number is very small compared with those labouring under other disorders. No one, he adds, denies that small-pox is a contagious disorder; yet the same rarity of transmission is observed as to the persons labouring under this disease, and those who have not passed through it, and have not been vaccinated, in the Paris hospitals as to typhoid fever.

A third cause, he adds, of the apparent rarity of these facts indicative of the transmissibility of the typhoid distemper, consists in the circumstance, that they are not sought for, and that those which occur most frequently escape observation, because attention is not fixed on the subject, and because the conviction of most physicians is opposed to the idea of contagion. As soon, however, as any pains are taken to seek these facts, they appear in multiplied abundance. Among 117 cases, he observes, noticed at the clinical establishment, in five only was it observed that the disease was developed in circumstances favourable to contagion.

The author considers, in the second place, the evidence brought forward on this question by M. Bretonneau, M. Leuret of Nancy, M. Gendrin and M. Navieres in France, by M. Ruef in Germany, by Dr Tweedie, Dr Elliotson, Dr G. Gregory in London, Dr Alison in Edinburgh, Dr Marsh in Dublin, and evidently espouses the view that the disease is contagious. As a final and cumulative argument, he institutes a comparison between camp typhus, as described by Pringle and Hildenbrand, which has been always allowed to be contagious, and the typhoid distemper witnessed by Louis and himself, and considers carefully the points of agreement and dissimilitude; yet though he thinks that they are the same disease, he does not regard the identity between the two as positively established.

The ultimate conclusions at which he arrives are the following:—

1. The opinion adopted by the majority of French physicians, that the typhoid distemper is not contagious, cannot be admitted as an established or demonstrated principle.

2. If this disease be contagious, it is so only in a feebler degree, and under the concurrent operation of several circumstances not yet perfectly ascertained.

3. If further observation demonstrate in typhus the existence of anatomical lesions similar to those which are observed in the typhoid distemper, the identity of these two diseases he thinks will be placed beyond all doubt, and the question of contagion will be entirely decided.

We are unfortunate in thinking that the question will not be so easily decided. Much as has been already done to give correct views of the natural history of fever, daily observation shows that we are still imperfectly acquainted with the mode in which it every now and then springs up and dies away. Upon the mode of its origin and propagation even many popular errors are daily repeated. Thus it is commonly said, that it is a disease exclusively of large and densely peopled towns and cities. Yet every season we see numerous cases take place in country situations where the population is by no means dense. Every autumn, for instance, and last autumn in particular in this country, the disease affected many of the reapers and other agricultural labourers in the villages of Mid-Lothian, East-Lothian, and Peebles-shire; and cases continued to be sent from these villages to the city Infirmary, independent of those treated at home, during the whole winter, and up to the present time (June 1838). Again, it is said that typhous fever always affects the poor, the indigent, and the filthy, and can be transmitted to the better ranks by no means but by that of contagion. This contagion, however, must have a very peculiar quality. For it is well known, and indeed a matter of frequent observation, that various individuals in the middling and upper ranks, who had no perceptible communication or intercourse with persons affected with fever, were attacked very severely, and several been destroyed by the disease. It is to be observed that the persons alluded to did not belong to the profession, were not officially or otherwise in contact or intercourse with the fever patients or their friends, and the disease was not communicated from them to any of their family or attendants, unless in one case. Nor is it always possible to trace communication and intercourse even among the lower ranks when affected by typhous fever. These facts and arguments are adduced not to disprove, absolutely and unconditionally, the doctrine of contagion as to fever, but simply to show that, while the disease must be allowed, in certain circumstances and seasons, to be propagated by contagion, yet in others the presence or operation of such an agent is neither cognizable nor susceptible of demonstration.

Lastly, it must be observed, that in the various situations in Germany in which the abdominal or intestinal typhus has been observed to appear, it was impossible, either at the commencement or in the course of the epidemic, to recognize traces of the operation of contagion.

IV. THE DIFFERENT FORMS OF THE TYPHOID DISORDER. —M. Chomel considers next the different forms under which the typhoid distemper may appear, and these he distinguishes into the following five varieties; 1*st*, Inflammatory Typhoid Fever; 2*d*, Bilious Typhoid Fever; 3*d*, Mucous Typhoid Fever; 4*th*, Nervous Typhoid Fever; and 5*th*, Adynamic Typhoid Fever. It is unnecessary to enter minutely into the history or distinctive marks of these several varieties of fever, which accord more or less closely with forms long known and described by many pyretological authors, systematic and practical. We shall merely advert shortly to their representative types in the treatises and writings most generally consulted.

1*st*. The inflammatory typhoid fever is evidently the pure *synochus* of Cullen, as the generic character of that fever is described by the Edinburgh nosologist, at least if the first member regarding the contagious origin and propagation of the disease as a doubtful character, be expunged. "Morbus contagiosus. Febris ex synochâ et typho composita; initio synocha, progressu et versus finem typhus." According to this view the disease may be defined as one with the following symptoms. At first great increase of heat; frequent, strong, hard pulse; red scanty urine; little or no disturbance of the sensorial functions; afterwards in its course and towards its close, heat not increased or rather diminished; small, feeble, generally frequent pulse; much derangement in the sensorial functions; and great loss of strength.

This is indeed the inflammatory typhus of M. Chomel, with the single difference, that the latter author marks more accurately the first and second periods than was done by Cullen. Very much like Hildenbrand, he assigns the space of seven or eight days for the first or inflammatory stage, and about seven or eight days more, according to circumstances, for the second, or adynamic, or proper typhoid stage of the disorder.

The inflammatory form is not met in all persons. Among forty-two cases in which the nature of the disease was established autoptically, in thirteen only, or less than one-third, were the symptoms at first of the inflammatory character. It is nevertheless manifest that even on this point there may be some source of fallacy. Patients do not enter hospitals till the disease is advanced several days, and consequently, as at this period the primary symptoms are over, it becomes impracticable to judge whether the disease began with inflammatory symptoms or not.

2d. The second form, denominated bilious typhoid fever, corresponds with that described by Tissot, as occurring at Lausanne, and is evidently still a frequent disease in various parts of the Continent. It is distinguished by the presence of squeamishness sickness, and bilious vomiting, and diarrhœa; sometimes with much epigastric or umbilical pain, in addition to the other symptoms, which attend the early stage of the disease. In some instances, it corresponds with the gastric fever of Baillou and various other authors.

3d. To the third form, the mucous typhoid fever, M. Chomel refers the *Morbus mucosus* of Goettingen, described by Roederer and Wagler.

4th. The fourth form, or the ataxic typhoid fever, is that in which the symptoms do not observe a regular course; in which, instead of inflammatory symptoms at first, there is great disorder in the functions of relation denoted by delirium, screams, *subsultus*, convulsions, and death at an early period; a variable state of temperature and of the pulse; or in which any one symptom or class of symptoms bears no proportion to the others. Among the 42 fatal cases, 10 presented ataxic symptoms, either isolated, or combined with the other two varieties. It corresponds with the intense varieties of the jail and hospital fever of Pringle, the *typhus gravior* of Cullen, and the congestive typhus of Armstrong.

To the same head, viz. the fourth form, M. Chomel refers the slow nervous typhoid fever, or the slow fever described by Huxham.

5th. The fifth and last form, or the adynamic typhoid fever, seems to approach to the slow fever of Huxham, and the *typhus mitior* of Cullen. It is the most common form, and that which has been most usually observed in the hospitals of Paris for several years bygone. Among the 42 fatal cases already specified, not fewer than 26 are referred by M. Chomel to this category. He distinguishes the cases into two tribes; 1st, those in which the adynamic symptoms appear from the commencement of the attack; and 2d, those in which these symptoms ensue in the course of the disease.

Unlike the ataxic form, it is not so suddenly fatal; and the duration of the symptoms may be protracted for a considerable time; for instance, one or two months, during which the patient may several times appear on the verge of the grave. Among 10 cases in which the fever presented at first, and retained throughout its adynamic character, terminations took place in the cases specified on the days of the disease mentioned in the subjoined table.

In 2	cases the disease terminated on the	15th day.
2	- -	20th.
1	- -	22d.
1	- -	28th.
2	- -	37th.
1	- -	34th.
1	- -	38th.

This table shows, the author observes, that of all the forms of typhoid fever, the adynamic is the most tedious.

V. THE DIAGNOSIS OF THE TYPHOID DISORDER.—The diagnosis of typhoid fever from other diseases, with which it is liable to be confounded, next occupies attention; and the author considers the diagnostic and pathognomonic symptoms at the commencement, in the middle, and in the advanced stage of the distemper.

In the commencement of the disease, that is, during the first five or six days, before the eruption has appeared to guide the physician, the chief symptoms by which his judgment must be regulated are, along with evident febrile phenomena without perceptible local cause, permanent headach, fits of giddiness, unsteadiness in gait and standing, in a person placed in the conditions of age specified, especially if he has been resident for a short time in a large city, and if he have not previously had typhoid fever. The opinion then formed will be confirmed, if, on the second or third day, to the symptoms now mentioned be conjoined, other common signs, as diarrhœa, feebleness, incipient stupor, and one or more nasal hemorrhages.

Duration, M. Chomel justly observes, or persistence of symptoms for a series of days, forms an important character in the diagnosis of the typhoid disorder. Thus if, after five or six days, well-marked febrile symptoms gradually subside, the attack must be regarded as one of mere *ephemera*, catarrh, gastric disorder, or *synocha*. But if the symptoms continue beyond a certain time, eight or ten days for instance, there will be strong reason to presume that they are connected with alteration in the Peyerian glands.

At the middle period, and most commonly from the sixth to the twelfth day, there ensue symptoms which, in the majority of cases, ought to leave no doubt on the nature of the disorder; viz. *meteorismus* of the belly, the typhoid eruption, stupor in almost all the severe cases, epistaxis and intestinal hemorrhages. As the whole of these symptoms, however, do not appear in all cases, in a certain number the diagnosis cannot be formed directly, but only by the method of exclusion.

At the advanced stage of the disease, its nature can rarely be matter of doubt..

The facility with which various morbid sensations and uneasy feelings take place in typhoid fever, and the readiness with which it is liable to be complicated with local inflammatory disorders, constitute the great difficulty in the diagnosis; and hence one or more of its symptoms are at different periods of its course liable to be mistaken for various acute diseases. Those, however, with which it is most liable to be confounded are, *enteritis*, *colitis*, or latent inflammatory disorder, as *pneumonia*, pleurisy, or *peritonitis*, some of the adynamic diseases of aged persons, *phlebitis*, the third period of cholera, and certain cerebral disorders. M. Chomel takes an elaborate view of the means of distinguishing typhoid fever, so as to prevent it from being mistaken for any one of these disorders; but as our limits do not permit us to follow him in this part of his discussions, we must refer the reader to the work, which will amply reward perusal. With ordinary attention, we think there is no great difficulty in forming the diagnosis; and without attention all directions will be useless.

VI. THE PROGNOSIS OF THE TYPHOID DISORDER.—The point which next claims attention is the subject of prognosis. This is always in fever a matter of doubt; and every case must be regarded with more or less apprehension. Few diseases indeed, M. Chomel observes, destroy so many victims in proportion to the number of persons attacked. The observations of Dr Alison in our twenty-eighth volume, and the Reports of Dr Craigie in the forty-sixth and forty-seventh volumes, show the mortality of this disease for the city of Edinburgh and its environs, to vary from 1 in 14½ to 1 in 19⅛, and from 1 or 11⁵⁄₇ to

1 in 7¼, which has been in general the average mortality of late. Dr A. S. Thomson has in the present Number collected the mortality in different countries and epidemics, and shows that, upon a large average, the mortality is at least 1 in 15. But the whole of this is much under the influence of age, sex, constitution, previous habits, epidemic characters, and the locality in which the fever prevails. In the Report by Dr West of the exanthematic typhus of London in the present Number, the mortality amounted to 1 in $4\frac{2}{7}$. But the whole of these rates of mortality are exceeded by that of the typhoid distemper in the Paris hospitals. Among 147 individuals admitted into the clinical wards of the Hotel Dieu, with symptoms of this disorder, from the beginning of the year 1828 to the end of 1832, a space of four years, 47 died, which gives a proportion of about one death in three cases.

It may nevertheless be observed, in explanation of this high degree of mortality; 1. that the physicians of the Central Board allot to the hospitals least remote, viz. La Charité, and still more particularly the Hôtel Dieu, the patients attacked with the most formidable symptoms; and 2. that, in these hospitals, patients of this class are placed chiefly in the clinical wards. From these two circumstances, it results that the mortality is generally more considerable at La Charité and the Hôtel Dieu, than in the other hospitals, and in the clinical wards, than in the other wards of these hospitals.

The circumstances, however, on which prognosis depends, are liable to considerable variations; and the result is liable to be influenced by age, sex, acclimatization, occasional causes, accidental complications, the season of the year, and, as already stated, the character of the epidemic, and the localities in which it prevails.

The following table is given of the numbers of persons attacked and that of fatal cases at different ages, as they were collected at the clinical establishment of the Hôtel Dieu, during the course of five years, the total number being 147 cases.

	Patients.	*Deaths.*
From 15 to 18 years	9	0
18 to 20	30	9
20 to 25	51	18
25 to 30	36	12
30 to 35	12	4
35 to 40	3	1
40 to 50	5	2
above 50	1	1
	147	47

It will be observed here that while between the ages of 18 and 40, the average mortality is very regularly 1 in 3, below 18 it is very small, and beyond 40 it is one in two, or 50 per cent.

The influence of sex seems not very considerable according to the table presenting the distribution of the deaths and recoveries among the two sexes in the present volume. Among 147 patients, 46 were females, and 101 were males. The recoveries and deaths are divided in the following manner:

	Attacked.	*Recoveries.*	*Deaths.*
Males,	101	68	33
Females,	46	32	14

The deaths are more than 1 in 3 in each sex. The influence of length of residence M. Chomel infers to be important from the following numbers.

Among 90 cases of patients accurately reported in this respect.

Among 24 persons whose stay in Paris did not exceed six months, there were	9 deaths.
Among 40 whose residence extended from six months to two years, ...	12
Among 15 resident from two years to six years,	5
Among 11 resident more than six years, . .	3

On the subject of the influence of occasional causes, we fear it is not possible to present any very important results; and with regard to the estimate of the danger or mortality of particular symptoms, though carefully discussed by the Professor, we feel we could not advantageously to our readers enter at length into the subject.

On the question of the influence of the seasons, it appears that the difference is merely fractional, being 1 in 3½ cases for winter, and 1 in 3⅗ for summer.

VII. ON THE TREATMENT OF THE TYPHOID DISTEMPER.—We must now proceed to notice shortly the therapeutic principles of M. Chomel.

The treatment of the typhoid distemper he allows to be one of the most difficult and obscure subjects in practical medicine. He might have added, that it was one of the most uncertain, and least capable of being reduced to general and exact principles. It is neither an empirical nor a rational method, that can always be adopted; and he allows that the rational method itself, or that in which the treatment is modified according to the form and period of the disorder, has not such a degree of success as to establish clearly its superiority over all other methods.

He very properly renounces the idea of any thing like exclusive general methods applicable to every form and variety of fever, and after a rapid view of the methods suggested by the theories of debility, putrescence of the fluids, dissolution of the blood, impurities in the *primæ viæ*, and inflammatory action in particular regions, he justly appeals to the fact, that, under the most opposite methods, the result is nearly the same in large numbers of cases,—to prove, that, upon the whole, medical treatment has not a great influence upon the severity or the terminations of the disease; but, nevertheless, that every epidemic shows, that it is the duty of the physician to accommodate his therapeutic methods, as accurately as possible, to the general character and symptoms of the disease.

In some instances, in the course of this disquisition, he betrays a degree of imperfect acquaintance with the state of medicine and medical practice in this country, which must throw some degree of doubt upon the accuracy of his information as to that in other countries. Thus he tells us, that the treatment by means of purgatives, called the method of Hamilton, from the name of the author who brought it into notice, is, nevertheless, abandoned even in England in its general application, though many English physicians still employ purgatives in the course of typhoid fever, which have not in their hands the fatal effects ascribed to them by the partisans of the physiological doctrine. Now we must inform M. Chomel, that the administration of purgatives in typhous or typhoid fever, whether it be called the method of Hamilton or not, is neither abandoned, nor likely to be soon abandoned, in England; and the experience of all physicians who have had much to do with the treatment of continued fever shows that the frequent and repeated exhibition of purgatives in the course of that disease, from its commencement to its termination, is the most effectual and the least objectionable, and, we would add, the most rational, method that has yet been devised; and whatever may be the practice of a few adherents of that school, who have, with equal propriety and modesty, called themselves the physiological, it still holds its rank as a pre-eminent and indispensable method in the therapeutics of fever. It is true, that, in that order of cases in which there is reason to apprehend ulceration of the intestinal follicles, it requires to be modified. But this order forms, at least in most cities in Great Britain, so small a proportion of the general run of fever cases, that the inference deduced from it cannot be entitled to a conspicuous position in the general estimate of the merits or prevalence of the therapeutic methods adopted.

The rational method of M. Chomel consists in the adaptation of the whole therapeutic measures employed to the form and stage of the disease under treatment.

And, in the *first* place, as the typhoid disorder does not always appear with the general phenomena belonging to inflammatory, bilious, adynamic, and ataxic fevers, and the febrile phenomena are not in all cases attended with any peculiar or prominent symptoms, it furnishes no striking or distinct indication; and when it changes not in its ulterior course, the termination is almost uniformly favourable, excepting always those cases in which intestinal perforation is to be dreaded.

This last exception is a very formidable clause, and ought, according to our conception of the pathology and therapeutics of fever, to be kept in view, as a thing to be prevented, by all possible means, from the very outset of the disease. If M. Chomel had added that perforation is an effect of ulceration of the muciparous intestinal follicles,—that ulceration is an effect of inflammation and inflammatory swelling,—and that this inflammatory swelling ought to be obviated and assuaged by all practicable measures,—he would have, according to our notions, effected a most important improvement in the therapeutic indications required for the treatment of typhoid fever.

The great reason of the inefficacy of medical treatment and the incurability of disease, is the fact, that physicians absurdly expect to cure the effects of disease, or to arrest the onward progress of disorganizing processes when they are so far advanced, that it is physiologically and pathologically impossible to do so. We may safely assert, that no effect of diseased action was ever cured by the physician. Nature, that is, the properties of the textures and the laws by which their actions are regulated, sometimes make an effort to stop their progress, and occasionally succeed in that effort. But we never heard of the physician stopping the progress of intestinal ulceration or perforation, or that of tubercular excavation of the lungs, when it was proceeding to the same event.

From this digression, however, we return to the rational method of M. Chomel.

In the form already specified, that is, the form without specific symptoms, M. Chomel confines the treatment to the prescription of cooling drinks, as lemonade, solution of gooseberry jelly, orangeade, water, at short intervals, and in quantities proportioned to the necessities of the case,—emollient fomentations or cataplasms of lintseed over the belly if painful; lotions of the surface with vinegar and water, or simple baths, if the heat be considerable; mucilaginous enemata repeated several times daily; cold compresses on the head when painful, and hot poultices and sinapisms, if there be tendency to stupor or confusion of thought.

In the majority of cases, the means now specified may be employed alone, and the disease may terminate favourably. He, nevertheless, allows that it is useful, in the most simple cases of the disease, to prescribe at the commencement venesection, the first effect of which is to abate the intensity of the headach and to accelerate the period at which it terminates. He believes also that it may prevent the subsequent occurrence of symptoms more or less severe. He appeals to the tables published by M. Louis in 1829, to show that blood-letting practised at the beginning of the disease exercises a beneficial influence on its duration and its termination. He recommends with the same intention, local bleeding by leeches applied below the mastoid processes in the case of intense headach, and to the anus in the case of abdominal pain. Alvine evacuations by tamarind-whey or neutral salts, or some gentle laxative if the bowels be bound, or if loose, mucilaginous drinks of gum or rice water, and enemata of starch, complete the merely medical measures.

Cleanliness, ventilation, frequent change of personal and bed linen, with the use of oiled cloths, according to the state of the discharges, complete the therapeutic means in this form of the disorder.

When the fever assumes prominently any of the peculiar characters indicating the presence of the varieties already specified, certain modifications become requisite. Thus in the inflammatory form, blood-letting is more urgently demanded, and may be carried to a greater extent; and he even allows, that, in the second and third stage, it may be necessary to repeat this evacuation in small quantities, and upon exploratory or tentative principles. Even in the bilious form of the disorder, in which many physicians have condemned blood-letting, he recommends its employment. Emetics also he allows at the commencement, but speaks not in decided terms.

In the other forms we cannot discover any thing very new or important in the therapeutic instructions given by M. Chomel. In the ataxic, and especially the adynamic forms he allows wine, ether, and other stimulants; and commends much the different sorts of Claret and Burgundy, as of sovereign efficacy. When the adynamic symptoms are still more strongly marked, he allows the generous wines of the south of France, and the strong wines of Spain and Portugal, especially Madeira, to be entitled to the preference.

In the same form of the disorder he gives quinine and similar tonics.

In the second paragraph, which may be regarded as devoted to empirical treatment in contradistinction to the rational method, we find a discussion upon the employment of the chlorides, and the circumstances requiring their administration.

He appears to have been induced to have recourse to this method not by any particular symptoms, or any peculiar form of the disorder, but chiefly by the fact of the general and occasional uncertainty of all other methods. At first he used water charged with carbonic acid, he tells us, in drink and by clyster; and after having obtained during the first year a degree of success which was not confirmed the second, he began to use chlorides, in consequence of a proposition made to him in 1831, by a young physician then attending his clinical instructions at the Hotel-Dieu. He hesitated less in adopting this mode of medication, since it did not preclude other measures usually employed, especially blood-letting at the beginning, and tonics at a more advanced period, when required by the adynamic symptoms.

He first chose the chloride of soda, as being most usually employed in medicine; and prescribed it in solution in drink without acidity, and frequently in a solution of gum syrup. He gave a grain or one grain and a-half of chloride in one ounce of vehicle, to the extent of eighteen ounces in some cases daily. The remedy was also administered by enema, morning and evening, and the surface of the body was washed with pure chloride of soda four times daily. It was applied in poultices on the belly; it was used in baths; it was sprinkled over the bed-clothes; and vessels containing it were placed round the bed.

This treatment was tried principally in patients who presented the following three conditions.—1. The unequivocal presence of the disease; 2. Sufficient intensity in the symptoms to denote danger; and 3. The disorder still in its first stage, or at the beginning of the second. The following results were obtained.

In the summer of 1831, onwards to the 1st of September, five persons attacked with severe fever were treated by the chloride preparations. The first two subjected to this treatment presented during the first days of the disease so alarming an increase in the intensity of the symptoms, that he was led to apprehend the definitive issue of the disorder before he could repeat the same trials on other patients; and even after this treatment had been continued for from six to seven days, one of them was so enfeebled, that he thought it requisite to substitute for the chloride the most powerful tonics; and since that period he has often employed them in conjunction. This patient, as well as the other four, recovered; and in the report for the month of August, no death took place among the patients so treated. Among 51 patients treated by the ordinary method, 16 died. The proportion of deaths was always one in three cases.

From the 1st of November 1831, to the month of August 1832, 23 persons labouring under typhoid fever were admitted into the clinical ward. Of this number 15 were treated by the chlorides, and 8 by the usual method. Five of the 8 had symptoms of little intensity, and recovered. Among the other 3 who died, one was in the dying agonies; the other was admitted at a period too far advanced for treatment to have any influence; in the third, the disease, though very severe, left, till death, some uncertainty in the diagnosis.

Among the 15 patients treated by chloride of soda, only 2 died; and in one, independent of the lesions peculiar to typhoid fever, hepatization of both lungs at their posterior inferior region, and tubercles at the apex of one were found on inspection.

Combining these results with those of the previous year, among

20 patients subjected to this mode of treatment, two only died; and the death of one must be ascribed in as great a degree to the double *pneumonia*, and the presence of tubercles as to the fever; so that there were eighteen cases of favourable for one of unfavourable event.

From the beginning of the academical year to the 20th March 1834, fifty persons labouring under typhoid disorders were admitted into the clinical wards of the Hotel-Dieu. Of this number 37 were treated by chloride of soda in drink, clyster, lotion, poultice, and bath; and 13 by the ordinary method.

Of these 13, 8 presented symptoms so mild, that the diagnosis was established only at a late period, and imperfectly. In 3 others the typhoid distemper presented complications, especially pneumonic attacks, which excluded the employment of the chlorides. Two were brought into the clinical establishment only at an advanced period of the disease. Among these 13 patients, 5 died.

Among the 37 treated by the chlorides 12 died, and 25 recovered, which still gives a mortality of 1 in 3. But for a reduction of this M. Chomel strenuously argues. Among 14 the symptoms were extremely intense. Among the 12 fatal cases, one already convalescent was destroyed by cholera; one by *pneumonia;* one had pulmonary tubercles and excavations, and was destroyed by perforation with pneumathorax; a fourth was brought to hospital in the agonies of death; and in two others there was double pneumonia. By making due allowance for all these cases, though the treatment by the chloride of soda appears to leave the same number of deaths, viz. 1 in 3, as the other methods, yet M. Chomel thinks it must be allowed that it is the means of lowering the mortality from 1 in 3 to 1 in 4½.

VIII. ON THE NATURE OR ESSENCE OF THE TYPHOID DISTEMPER.—The concluding article in the volume contains a discussion on the nature of the typhoid disorder. It is well known, that since the state of the intestinal villous membrane and its follicles attracted so much attention, it has been a great object to ascertain whether this lesion is necessarily connected with the typhoid fever, and whether it be a cause of the symptoms or an effect of the same morbid process from which they proceed. While M. Chomel maintains, that no observant physician conversant with morbid anatomy can at present regard typhoid fever either as *gastritis* or *gastro-enteritis*, he thinks it as clear as light, that the anatomical change which is characteristic of this disorder, resides neither in the mucous membrane of the stomach nor in that of the intestines, but in the intestinal follicles, where it appears in forms which vary according to the period of the disease, but which in each of its periods assumes a particular form, and cannot be confounded with any other lesion.

As this fact was too evident, adds M. Chomel, to be disputed it led several of the partisans of the physiological doctrine to denominate this affection no longer under the name of *gastritis* or *gastro-enteritis*, but *follicular enteritis*. Even this small concession to their favourite pathological fancy, however, he will not allow them, and maintains that it is not in the membrane, but only in the follicles with which it is covered, that the disease is seated.

To determine aright the nature of the disorder as comprising or connected with this lesion, he proposes for examination the following four questions.

1. Is the lesion of the intestinal follicles of an inflammatory nature?
2. Is the intensity of the lesion generally proportioned to the severity of the symptoms?
3. Is the lesion uniform?
4. Is this inflammation when present primary or secondary?

To the first question he answers, that the follicular lesion is of an inflammatory nature. In answer to the second he concludes after a long discussion, that it is demonstrated that, in a great many cases, there is no proportion between the severity of the disease, and that of the anatomical lesions. The third question he admits must be answered in the negative, because in a few rare cases the lesion is totally wanting. The fourth question gives rise to a long and rather intricate discussion, in which the author endeavours to elucidate the question as to the difference between primary and secondary inflammation. It is not difficult to comprehend that, in the case of the present question, the point is to determine whether the follicular inflammation and ulceration gives rise to the fever and its symptoms, or whether it occurs in the course of the disease, whether, in short, a previous morbid state exists, in the course of which, or in consequence of which, this follicular inflammation is called into existence. M. Chomel is led, from a full review of all the circumstances, to infer that inflammation of the intestinal follicles is only one of the secondary phenomena of the distemper, and that it does not constitute the primary phenomenon, the generating point of all the symptoms.

This is a great point to be conceded by a teacher like M. Chomel, living in the midst of those who for many years have impressed the profession with the important nature of the follicular disorder in fever. It is, however, somewhat inconsistent with many of the principles laid down in the volume and already noticed. With this, however, we do not quarrel, when we consider that the author willingly promotes the cause of truth and correct principles.

He next considers the question of what constitutes the essential character and nature of the disease. And here we find, as in other writings, nothing satisfactory. After adverting shortly to the idea that fever consists in a lesion of the nervous system, he expresses his inclination to refer its phenomena preferably to some lesion in the fluids. This, he admits, is quite conjectural. We must say, however, that the method of inquiry which he has pursued is rather favourable than otherwise to the doctrine. As, however, we refrain from speculation and inquiry, where no certain grounds can guide, we must not spend any time either in the notice or the explanation of this view.

We here conclude our account of this first volume of the clinical instructions of M. Chomel. The length at which we have given the results of his labours, and the occasional criticisms which we have pronounced on several of them, afford sufficient proof of the high estimate which we have formed, and of the importance which we attach to the information contained in this volume. We have only one remark to offer, which we trust will be taken in the spirit in which it is given. The number of cases we think too small to do justice to the talents of M. Chomel, either as a physician or a statistical pathologist. But the volume is so valuable on every thing that respects the accurate history, either of the symptoms or the morbid anatomy of the disorder, that we think no physician can pretend to practise his profession without a careful perusal of the labours of M. Chomel.

ART. II.—*The Nature and Treatment of Diseases of the Ear.* By Dr WILLIAM KRAMER. *Second Edition of the Author's Treatise on Chronic Deafness, much improved and enlarged.* Translated from the German, with the latest improvements of the Author since the last German Edition. By JAMES RISDON BENNETT, M. D., Member of the Royal College of Physicians London, &c. &c. 8vo. London, 1837, Pp. ix. and 306. 2 Plates.

Dr KRAMER's work consists of two parts, the first of which is devoted to general, and the second to special acoustic medicine.

Passing over the first chapter, containing a general view of the literature of this branch of medicine, and of the anatomy, physiology, and pathology of the organ of hearing, we find Dr Kramer in the second, examining minutely the experience and doctrines of various authors, respecting electricity and galvanism as therapeutic agents in diseases of the ear, and stating his opinion to be, that they are not only useless but injurious. Moxa and the actual cautery he also rejects, because, while there is no proof of their utility, they lessen the probability of the success of other remedial measures. Of blisters and tartar emetic ointment he speaks in the following terms.

"Blisters and tartar emetic ointment applied behind the ears are elevated, (especially the former) to the rank of domestic remedies, and in general are applied for diseases of the ear of every kind without distinction. If it must be granted, that in many slight cases blisters are not injurious, it is because from the naturally short course of the disease, they are soon allowed to heal; but in all obstinate diseases of the middle ear, they are of no use whatever; in nervous deafness they are even positively injurious, and are only indicated in topical circumscribed inflammation of the meatus, and of the *membrana tympani,* though even here, they are often rendered useless by remedies introduced directly into the meatus. If in the above-mentioned cases blisters do not soon render the service expected from them, they should at once be replaced by tartar emetic ointment, which I am in the habit of using from the first without having recourse to blisters. This I allow to be rubbed in below the mastoid process, in order to avoid all risk of *caries;* and even here I do not readily suffer the suppuration to be kept up longer than fourteen days, from behind the same ear. It is indeed better to submit each ear alternately to the action of the ointment." —Pp. 56, 57.

Issues in the arm, setons in the neck, douches, whether of pure or medicated water, and vapours of different kinds, are looked upon by Dr Kramer as either useless or positively injurious.

There is perhaps no plan of treatment more frequently adopted in this country, in all affections of the ear, than dropping or injecting narcotic or acrid fluids into the external meatus. The result in a few cases is harmless, in most prejudicial, and, as we have seen many instances of the latter, we beg to call the attention of the reader to the following remarks of the author.

"Drops and injections, especially those of an acrid spirituous, irritating class, from established custom, and almost invariably without any other indication than a somewhat defective secretion of wax, are unfortunately made use of to the great injury of the patients. Inflammation and tumefaction of the meatus, which extends over the auricle and is occasionally very painful; inflammation, thickening and opacity of the *membrana tympani;* and excitement of the auditory nerve consequent on these inflammatory accidents are the usual results of such irritating external applications. When they appear to be of use, it is only for a time;—the result of the increased irritability of the whole organ, which is associated with the inflammatory excitement of any one particular part. Increased difficulty of hearing always succeeds to this temporary improvement, though fortunately time often removes this deterioration, if the application of such pernicious external remedies is not obstinately persisted in.

"According to this view, the recommendations and modes of action of the various secret remedies in use for the cure of deafness, which are all compounded of medicaments of the above class, must be judged of, or, in other words, they must be rejected as absolutely injurious; and the more so indeed as there is no remedy for deafness or dulness of hearing in general, but only for individual diseases of the ear that have been proved by careful investigation." Pp. 58, 59.

"Cajeput oil, camphor, opium, onion-juice, oil of cloves, tincture of castor, *eau de Cologne,* and innumerable other remedies, which do not admit of being recounted, must be considered as absolutely injurious when introduced into the meatus, as is often done, merely on account of toothache. Instead of mentioning all the particular remedies of this class, I will only take tincture of castor, as an example, of itself a mild application, and which, from the repeated recommendations of both ancient and modern authors, I have been induced several times to apply to the external meatus, when there was great aridity and deficiency of cerumen, and where the deafness was purely nervous. I prescribed only one part of tincture of castor, to be mixed with two parts of white French wine, and only three drops of this mixture, on a little cotton wool, to be introduced into the meatus night and morning. But even this very cautious application soon gave rise to slight heat, which in several instances passed into active inflammation and tumefaction of the meatus, accompanied with violent tickling, inflammation of the auricle, and even tumefaction of the whole face, with great difficulty of hearing and tinnitus; so that from these accidents it may be readily calculated what is to be expected from other much more acrid applications.

"These remedies are most injurious when introduced into the meatus in the form of ointment, as for example in the case with the red eye ointment (red precipitate) and other similar ointments.

"Even the '*oleum hyoscyami*' acts injuriously on the organ of hearing and its function, notwithstanding the strong recommendation of it by Joseph Frank.

"Warm fomentations, injections of warm milk, the vapour of elder and camomile flowers, &c. slices of hot bread with juniper oil, &c. dropped on them, kept applied to the ear till they cool, and many other similar remedies, are mere play things by which the patient is amused, because the practitioner can do nothing better. But though by these means there is not much harm done, as the remedies are mild and insignificant, still, that time is thus wasted in which something better might have been effected. If, however, the fomentations, though consisting merely of infusions of elder and camomile flowers, wormwood, and the like are introduced into the ear very hot, and even by the means of a funnel; if the slices of bread are applied very hot, and hot vapour douches introduced into the ear, the injury produced even by these is serious; they excite great congestion in the ear, and inflammatory affections of the meatus and *membrana tympani* with all their pernicious consequences." Pp. 59, 60, 61.

Dr Kramer considers the application of leeches useless in *tinnitus aurium,* and positively injurious when the affection arises from erethismus of the debilitated auditory nerve. In acute inflammatory affections of the ear, again, it is imperatively called for.

Though the author places no reliance on the constitutional treatment of diseases of the ear, and severely criticises practitioners who have employed it, he inculcates the necessity in all cases, especially those of a chronic nature, of most carefully regulating the condition of the patient according to the rules of general and special therapeutics, not for the purpose of curing or relieving the otic affection, but that the local treatment may produce its proper effect.

This part is concluded with the following tabular view of the curability and frequency of diseases of the ear.

Name of the Disease.	Incurable and not treated.	Cure.	Reliev.	Uncur.	Total.		
Of the Auricle.							
Erysipelatous inflammation.	0	1	0	0	1	3	85 in the External Ear.
Scirrhous degeneration.	0	2	0	0	2		
Furuncle.	0	0	0	0	0		
In the Meatus Externus.							
Erysipelatous inflammation.	0	17	0	0	17	46	
Inflammation of the glandular integuments.	3	9	13	0	25		
Do. cellular tissue.	0	2	0	0	2		
Do. periosteum.	2	0	0	0	2		
Of the Membrana Tympani.							
Acute inflammation.	0	1	0	0	1	36	
Chronic inflammation.	11	7	17	0	35		
In the Cavity of the Tympanum and Eustachian tube.							
Inflammation of mucous membrane with obstruction.	0	28	6	0	34		35 in the Middle Ear.
Inflammation of mucous membrane with structure of the Eustachian tube.	16	0	3	0	19		
Inflammation of mucous membrane, with obliteration of the Eustachian tube.	1	0	0	0	1		
Inflammation of the cellular tissue of the cavity of the tympanum.	0	0	0	1	1		

Name of the Disease.	Incurable and not treated.	Cure.	Reliev.	Uncur.	Total.	
In the Labyrinth.						
Erethitic nervous deafness.	60	21	52	7	140	152 in the Internal Ear.
Torpid nervous deafness.	3	8	1		12	
Deafness and dumbness.	8	0	0	0	8	8 ——
	104	96	92	8	300	300

188 relieved.

Dr Kramer commences the second part of his treatise with some caustic remarks on the classification of diseases of the ear adopted by previous authors. His own division into diseases of the external, middle, and internal ear, is liable to many objections; but these are more than compensated for in the present state of the science, by the simplicity of the arrangement, and the clear and distinct way in which each disease is brought under the notice of the reader. We shall consider the more important.

I. Diseases of the External Ear.—These are chiefly met with in childhood and youth, the organ being then liable, in common with the rest of the body, to various forms of inflammation. The frequency of diseases of the external ear at this period of life is still farther increased by its participating in all general cutaneous inflammations, the translation of which to the external ear often takes place. The affections of this part of the organ, which are met with in advanced age, will be found in general to date their commencement from early youth or childhood. They may, unless properly treated, affect a man to the end of his life, since the efforts of nature alone are scarcely ever able to induce a cure.

Affections of the external ear are divided by the author into three classes; 1*st*, those of the auricle; 2*d*, those of the external meatus; and 3*d*, those of the *membrana tympani*.

1*st*, *Diseases of the Auricle.*—The importance of the auricle has been very differently estimated by aurists. Itard and Vering deny that it is of any use either in man or the lower animals. Buchanan, on the other hand, adopts an opposite opinion, making acute hearing depend so much on the auricle, as to believe that from its form and angle of attachment to the temporal bone, as well as from the form and depth of the concha, the curability or incurability of imperfect hearing, may be determined in cases in which all other symptoms fail to give the necessary information. Dr Kramer examines the grounds on which these opposite opinions rest, and comes to the conclusion, that, though the auricle is not indispensable, it is not immaterial to good hearing.

Lacerations, wounds, &c. of this part are to be treated on the usual principles of surgery. The edges of wounds must be kept in opposition by means of suture, aided by adhesive plaster or the pad recommended by Buchanan.

" *a. Erysipelatous Inflammation of the Auricle.*—This affection commences with a disagreeable painful sense of tension of the auricle, which, from the lightest bright red, assumes the darkest brown-red colour, becomes hot, shining, and sensitive to the touch, hard and swollen to such a degree, that the prominences and depressions forming the helix and antihelix, can no longer be recognized. Not unfrequently small transparent vesicles appear here and there on the swelling, filled with a clear fluid, which soon dries into a thin scab. Sometimes there are numerous yellow purulent points, which after rupturing, dessicate and form an adherent crust, with which the auricle is covered. The meatus almost always participates in the tumefaction, by which its diameter is materially diminished, and from the irritation of the secreting glands there is induced the discharge of a thin dirty fluid, which is almost invariably followed by some diminution of hearing."—Pp. 79–81.

When this results from erysipelas of the face, it gradually extends from one ear across the forehead to the other, the one last affected exhibiting the morbid phenomena in the most complete form, when the ear first affected is free from tumefaction. The patient, as might be expected, always exhibits the usual constitutional symptoms of erysipelas.

" After these symptoms have lasted from three to four days, they gradually abate, the tension and redness diminish, the skin becomes wrinkled, desquamation takes place, the meatus again becomes free, and the morbid secretion and dulness of hearing vanish. Great sensitiveness of the ear to the touch and to the action of the air, remain, however, for some days after the other complaints. The present disease never gives rise to suppuration of deeper seated parts, even when frequent relapses occur, a broad thin crust is the only morbid product of this superficial inflammatory action."—P. 80.

This affection arises from irritation of the auricle or of the membrane lining the external meatus, as from sun-stroke, stings of insects, galvanism or electricity, wounds, irritating salves and drops applied to the meatus, and the extension of erysipelas from the face. So far as the ear is concerned, there is no danger; but it is annoying, on account of the painful tension and great proneness to relapse from the slightest cause, especially if the affection be connected with frequent attacks of erysipelas of the face.

The constitutional irritation must be treated on general principles. The topical treatment recommended by the author is altogether negative. If the patient be confined to his room, the ear may be left uncovered, or protected from cold air by a thin cap. Any acrid secretion may be removed by careful ablution with warm water, and spunging is scarcely ever necessary.

b. Scirrhous Degeneration of the Auricle at its commencement has a considerable resemblance to erysipelas. The progress of the symptoms, however, is slower, and in the course of these a swelling appears either of a bright or darkish-red colour, accompanied with a burning, itching, tearing pain.

"The whole surface of the auricle is by degrees implicated, so that its eminences and depressions are occasionally so far defaced, that the ear presents merely a knotty shapeless mass. There is no topical circumscribed hardness to be felt, involving the deeper parts; the pain also is generally diffused equally over the whole swelling. On the red and swollen parts small vesicles appear, resembling various kinds of eruptions, which sometimes secrete a serous and sometimes a thickish lymphatic fluid, which dries and falls off under the form of fine bran, of thin scales, or even of a thin crust; when the chronic inflammatory process advances farther, it produces excoriation and ulceration of the auricle, which may thus be perforated and destroyed. * * When the disease is further advanced the ear is always more nodulated and mis-shapen, assuming, especially if the lobus have disappeared, a round form. The nodules of the ear readily ulcerate."—Pp. 82–3.

The affection if it do not begin in the meatus generally spreads to it. The hearing is always dull, and though febrile symptoms seldom make their appearance, the sleep of the patient is generally disturbed. The seat of the disease is the corium.

This disease is distinguished from erysipelas by its tedious lingering progress; from furuncle of the auricle, partly by the general tumefaction of the part affected, and partly by its tendency to pass into ichorous ulceration instead of suppuration, and from lepra, by the lobe being involved in the general swelling, instead of being thin and wasted.

Chronic impetiginous or leprous cutaneous affections, extending to the auricle, produce a predisposition to these diseases, the developement of which is insured by filth, constant scratching, the vascular nature of the part affected, and by bad irritating food. The prognosis is very unfavourable.

The treatment consists, 1*st*, in attempting to remove the primary cutaneous disease, for which he recommends sulphur baths, and Zittman's decoction,* as being most efficacious; 2*d*, a thin spare diet and smart purging; 3*d*, cleanliness, and the application of simple zinc ointment to the ulcerated spots; and 4*th*, the excitement of a copious suppuration from the part below the mastoid process of the affected side, by means of the tartar emetic ointment. He has never found it necessary to employ other means, unless the structure be so far altered as to leave no hope of its return to a healthy state, in which case the diseased parts must be cut away, taking care to make the incision through the sound parts. When this has been done, Dr Kramer recommends suppuration to be kept up by tartar emetic ointment, rubbed in near the ear, and subsequently an issue in the fore-arm of the affected side. He disapproves of the use of the Russian vapour baths in any stage of the disease.

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* This is a mixture of a decoction of sarsaparilla and senna, with alum, calomel, and antimony, very much employed by the German physicians in the treatment of strumous, syphilitic, and strumo-syphilitic disorders. It is in use also at the Hôpital St Louis in Paris.

c. Furuncle of the Auricle makes its appearance in a circumscribed spot, in the form of a red hard tumour, varying in size from that of a pea to the bulk of a hazel-nut, which is preceded by pain of a sharp, pricking, throbbing, and tearing nature. When the tumour is small, the neighbouring parts are apparently healthy; but when large, they become red, tense, and swollen. The patient suffers from fever and want of sleep. After the swelling has lasted for days, or weeks, if the tumour be large, fluctuation may be detected,—if small, there is merely a soft yellow point, from which pus mixed with blood escapes. Relief immediately follows the discharge of the matter, and a shrivelled knotty eminence remains for some time. The hearing is impaired in proportion to the extent of the swelling, and the obstruction of the meatus produced by it.

This affection occurs most frequently in the *concha*, *fossa navicularis*, and *fossa innominata*, parts of the auricle which contain least cellular tissue. The seat of the disease is the cellular tissue beneath the derma.

The cause is unknown. Dr Bird thinks that he has observed it to be very frequent in individuals liable to mental derangement. Dr Kramer, however, in the present state of our knowledge, is inclined to attribute it to the application of cold.

The prognosis is always most favourable. The local treatment consists in promoting suppuration, and evacuating the matter when formed. The febrile symptoms may be alleviated by mild purgatives.

2d. Diseases of the Meatus Externus.—After making a few remarks on the structure, form, and direction of the external meatus, Dr Kramer offers some observations on the different plans and contrivances for examining it, and thus describes his own speculum, and the mode of using it.

> "My speculum, the utility of which has been proved in innumerable instances, is a metallic funnel, one inch five lines long, divided longitudinally into two arms. The further extremity is of an almost cylindrical form, one line in diameter, and seven lines in length; so that it can be introduced with ease even into an unusually

narrow meatus. Both halves of the funnel are united by their superior border at right angles, with forceps handles fastened by a joint; pressing on these handles opens the funnel, the wide separation of which gives much more commodious space for the sun's rays, for the eye, and for the instruments of the aurist, than the speculum of Hildanus. The inner surface of the funnel should be painted, or rendered perfectly dull; a polished surface reflects the incident luminous rays, and materially interferes with the examination.

" In order to conduct this examination, the patient is placed on a stool near the window, with the affected ear directed towards the window, through which the sun should be shining brightly; the auricle is drawn strongly up with the left hand, and the patient allowed to hold open his mouth, in order to free the auditory passage from the pressure of the articulation of the lower jaw; the speculum is introduced, with its cylindrical exremity closed, as far into the meatus as its width or sensibility will admit of, or as far as is required for the purpose of investigation. The hand being pressed on the handle of the instrument, it opens directly with the utmost ease, as far as is necessary, or as far as the meatus allows of being dilated. The practitioner can thus, by a proper inclination of the head of the patient, direct the rays of the sun to the bottom of the meatus, and obtain sufficient room to discover any diseased condition of the meatus and *membrana tympani* which may exist, provided he does not obstruct the light of the sun by his own head."—P. 91.

Dr Kramer then criticises pretty freely the means of illumination used by Cleland, Bozzini, Deleau, and Buchanan, and recommends an apparatus, of which the following is a description:

" The principal part is an argand lamp, with a thick cylindrical wick, the reservoir of oil being placed behind the box next to be described. This box is constructed of tin plate, the inner surface of which is painted black, in order to prevent any reflection of the light. It covers the lamp so as completely to enclose the flame, the lamp-glass passing through an opening in the top. At a convenient distance from the flame, and behind it, against the inside of the back of the box, there is a plated concave mirror. In the anterior face of the box there is inserted a thin tube, fourteen inches in length, which is likewise blackened inside, and each extremity of which is provided with a double convex lens, two inches and a half in diameter. The argand lamp throws its powerful mass of light against the concave mirror, whence the rays are reflected through the first convex lens, along the tube, and through the second convex lens. The luminous rays are thus collected into an intensely bright focus, of the size of a shilling, at a distance from the tube of the apparatus, very convenient for the illumination of the auditory passage."—Pp. 92, 93.

The speculum ought to be used in all cases of any importance, in preference to the probe recommended by Curtis, Itard, Wright, and others, which may injure the *membrana tympani*, and, at all events, gives unnecessary pain.

After noticing the classification of diseases of the *meatus externus* adopted by previous writers, the author states, that careful observation has taught him, that all such affections depend upon inflammation, varying in its characters according to the tissue in which it is situated. The morbid states consequent upon these different forms of inflammation, therefore, ought not to be reckoned independent diseases, but classed according to their origin; and, in consequence, he arranges them under four heads, 1*st*, Erysipelatous inflammation of the external *meatus*; 2*d*, Inflammation of the glandular structure; 3*d*, Inflammation of the cellular tissue; and, 4*th*, Inflammation of the periosteum.

a. Erysipelatous inflammation of the meatus externus.— This generally appears suddenly from exposure to cold or imprudent bathing. Occasionally, however, it comes on gradually, the severity of the symptoms either steadily increasing, or alternating with remission, followed by decided aggravation. The symptoms which accompany this affection are more or less tickling, itching; a pricking and burning pain in the meatus; a dragging pain in the ear, and about the head; confusion; noises of various kinds in the ear; a greater or less degree of deafness; and superficial redness of the canal, without swelling or diminution of its calibre. In two or three days, broad dry cuticular scales are thrown off, and a very tenacious cerumen, of a bright or dark-brown colour, is secreted, which is mixed up with cuticular scales, and adheres firmly to the walls of the meatus, which is thus completely stopped up. If the secretion be neither great, altered in quality, nor tenacious, and if it soon ceases, it dries and either falls out in small portions, freeing the patient from all his complaints, or is detached at various points from the walls of the canal, to such an extent as to permit sound to reach the *membrana tympani*. If, on the other hand, the quality of the cerumen be much altered, the secretion is greatly increased, though, except in one instance, in which he found ulceration under the matter, the author never saw it pass into a mucopurulent discharge. In more advanced life, when the cerumen has remained for years in the meatus, it assumes the form of a brittle concretion like chalk-stone, and its removal is both difficult and painful.

In erysipelatous inflammation the canal is generally very sensitive and bleeds readily, even in cases in which the patient takes no notice of the affection. In most cases the patient feels as if his ear was full and a veil drawn over it.

The diagnosis should never be drawn from the patient's account of the symptoms, but from inspection, which, in most cases, is easily made by drawing the auricle upwards and backwards, and ascertaining whether the meatus is obstructed by the dark shining mass already alluded to. Should it be situated more deeply, the speculum must be had recourse to.

The prognosis is always very favourable, though it is to be borne in mind that nervous deafness may coexist with this affection, in which case the removal of the accumulated mass will not alleviate, in the slightest degree, the dulness of hearing. The means by which this may be ascertained is pointed out by the author in discussing nervous deafness.

Dr Kramer's mode of treating this disease is very simple. By means of an ear syringe, of which he gives a description, he washes out the indurated wax with tepid water, which he has always found to be sufficient to soften the mass when necessary. When the hardened secretion has been removed, the patient at once feels his head relieved, and the *tinnitus* and dulness of hearing removed. The meatus, however, is to be carefully examined, and if found to be much reddened, a solution of acetate of lead of the strength of one grain to the ounce, is to be dropped into it, when the redness will disappear in a few days. In obstinate cases, much benefit is derived from rubbing in the tartar emetic ointment behind the affected ear.

b. Inflammation of the glandular structure of the meatus (catarrhal inflammation.)—The most frequent exciting cause of this disease is the application of cold in different ways to the ear. The others are, the extension of acute or chronic cutaneous affections to the meatus, the introduction into it of foreign bodies, the action of hot vapours from introducing fomentations into the ear by means of a funnel, and the use of acrid, spirituous, or oily fluids and irritating ointments. Repeated observations have satisfied Dr Kramer, that indurated wax, remaining even for a length of time in the ear, cannot affect the glandular structure. Youth and a plethoric state of the body, the scrofulous or gouty diathesis, and previous attacks of the disease, may be looked upon as predisposing causes.

The symptoms are more or less troublesome itching of the ear, with an irresistible impulse to thrust the finger into it. This irritation passes into severe burning lacerating pain, which is increased by any motion of the jaws, extends over the whole ear, mastoid process, and parotid gland, and disturbs the night's rest, though it never produces more than slight fever towards evening, and this but seldom. Children scratch the surface behind the ear, scream out, and, if able to speak, complain distinctly of pain and soreness within the ear. The canal is swollen over a greater or less extent, diminished in calibre and hot, though not always red. The redness, when present, and the swelling extend more or less over the auricle, which is there beset with vesicles, sometimes even pustules, and becomes hot and tender. The tumefaction becomes so great as scarcely to permit a knitting needle to be introduced. It may be either spongy, or firm, uniform and even. Sometimes it affects only one side of the meatus, forming a kind of elevation, which extends irregularly along the cavity, and covers the *membrana tympani*, which is always affected in the same way as the meatus.

Within a few days from the commencement of the pain, a serous or muco-purulent fluid, the characters of which vary, appears at the entrance of the meatus. This does not, however, prove the existence of caries. In most cases, noises of various kinds are heard, and there is always dulness of hearing proportioned to the severity of the affections. When the disease is confined to a part of the canal, there is little or no pain in the ear, and only a secretion of mucus proportioned to the degree of inflammation. The partial swelling of the walls of the meatus, discovered on inspection, when further developed and more elevated, is called a fleshy excrescence or polypus. The form and appearance of these granulations vary. They may be either soft, spongy, very red, vesicular, sensitive, pedunculated, or globular, covered with a copious mucous secretion, and bleed from the slightest touch, or have a broad base, and be hard, insensible, rather of a pale red, and bleed little or not at all.

When the polypi are pedunculated, the force and rapidity with which they distend the meatus produce a dragging pain in the head, even to vertigo and vomiting, whenever the patient raises it, while those with a broad base must be of a considerable size, and press on the membrane of the tympanum before they give rise to similar symptoms. The diagnosis must never be drawn from the statements of the patient, but always from inspection. Though this affection very often passes from the mildest to the most aggravated form, it never, according to Dr Kramer, extends beyond the glandular structure. Even the most acrid secretion producing excoriation, neither penetrates to the bone, induces true ulceration, nor destroys the *membrana tympani*, though this membrane is seldom free from inflammatory redness. He admits, however, that it is possible, when the scretion from the glandular structure is suppressed, that the inflammatory action may be greatly increased, and transferred not only to the internal ear, but even to the brain, and in both cases endanger the patient's life. The duration of the disease is indefinite.

The prognosis in those cases in which the inflammatory tumefaction extends equally over the whole meatus is favourable, because it yields to judicious treatment. If, on the other hand, it involves merely the bottom of the meatus, covering only the periphery of the *membrana tympani*, or concealing it altogether, if the secretion be rather serous, or lymphatic and scanty, and the swelling hard, firm, and insensible, the affection may be looked upon as incurable. When the polypi are insensible, pale-red, and broad at the base, the same prognosis must be given. But if they are pedunculated, very red, sensitive, soft, bleed easily, and secrete copiously a yellow mucus, they may be easily excised or destroyed by ligature; after which the discharge, dulness of hearing, and other symptoms will be materially diminished. In many cases, however, a radical cure cannot be accomplished as the root remains, and a new growth from it is the consequence; and even the root alone is sufficient to cause the symptoms to continue. Impetiginous affections of the glandular structure are exceedingly obstinate. Dr Kramer considers the reappearance of the healthy ceruminous secretion the only certain sign that the glandular structure of the meatus is free from inflammatory excitement.

In the treatment of this disease, the first object is to keep the meatus as clean as possible; and this may be done by syringing it once a day, or oftener, as circumstances may demand, with tepid or cold water, according to the patient's feelings. In mild cases, this and covering the ear with a light cap, or a small bag of flour to guard it from the air, will be sufficient. When the affection is produced by the extension of any cutaneous disease, the appropriate treatment of the latter must be employed, and, after its removal, it is requisite to have recourse to the means immediately to be mentioned. When insects enter the canal, they are not so easily detached as might be expected. An attempt must be made to seize them with the forceps; fresh olive-oil is to be dropped in for the purpose of killing them, after which they may be easily washed out. Small bodies, inserted into the ears by children, are to be removed by appropriate means; care being first taken to subdue any inflammation which may be present, if it should have proceeded so far as to render the canal too sensitive to bear the contact of any instrument.

Dr Kramer gives some valuable directions for the removal of polypi and elevations of the glandular structure, for which we must refer our readers to his work. When inflammation continues after the removal of a foreign body, and the swelling is spongy and vesicular, he recommends the use of the sponge compress, introduced in smooth strips, and allowed to remain twenty-four hours. When the swelling is not vesicular, he thinks nothing is more efficacious than a solution of acetate of lead, from one to ten grains to the ounce, dropped into the ear twice or thrice a-day, after it has been syringed with water. In more severe cases, tartar emetic ointment is to be rubbed in below the mastoid process. If the patient be plethoric and accustomed to full living, he should be placed on spare diet, and be well purged several times a week, with saline cathartics.

Inflammation of the cellular tissue of the meatus, (phlegmonous inflammation.)—This disease, which is always occasioned by cold, and lasts from three to seven days, is attended with heavy, dragging, tearing pains in the meatus, which, though slight at first, soon become more severe, extending over the half or even the whole of the head, and aggravated by the least motion of the jaws. Fever comes on in the evening, allowing the patient little or no sleep. The meatus appears red, swollen, and almost completely closed; secretes a thin reddish mucous fluid, and is extremely sensitive. There is a feeling as if the ear were plugged, and a sensation of buzzing and great diminution of hearing are always present. When the disease is limited in its extent, a small elevation, with slight redness, but considerable heat and tension, is observed generally in the anterior half of the canal. This, after a few days, points and discharges purulent matter, which affords great relief. The more severe form of the disease terminates in a sudden discharge of a thick yellow matter streaked with blood.

This affection he distinguishes from inflammation of the glandular structure by the suppuration which generally occurs, and from inflammation of the periosteum of the osseous portion of the canal, by the absence of any carious surface at the bottom of the suppurating spot.

In the treatment he advises to promote suppuration by emollient poultices till the tumour bursts. When the inflammation extends over the whole meatus, and is attended with insupportable pain and febrile excitement, he recommends eight or twelve leeches to be applied round the ear, and the bleeding to be maintained till decided relief ensues. The application of poultices must be continued night and day, and warm oil of almonds dropped in occasionally till the abscess opens, which is marked by the sudden remission of all the symptoms. He continues the use of the cataplasms till all painful tension disappears, when, if due care have been taken to keep the parts clean, the opening will be found to be closed. Strict antiphlogistic regimen and saline purgatives must be had recourse to during the whole period of the disease. This treatment is not bad; but it would be much improved if the object were made to prevent suppuration by means of adequate depletion. The treatment to be adopted when the *membrana tympani* is affected, Dr Kramer considers under affections of that part. These, however, though important and judiciously discussed, we are compelled to omit.

II. Diseases of the Middle Ear.—These result either from inflammation of the mucous membrane, or from inflammation of the cellular tissue, and periosteum of the cavity of the tympanum, and accordingly the author arranges them under the following heads.

1. *Inflammation of the mucous membrane of the middle*

Ear.—Dr Kramer considers that it would be useless, on mere theoretical grounds, to separate diseases of the Eustachian tube from those of the tympanum, because they cannot be distinguished, and even if they could, the plan of treatment is the same. The three subdivisions which he adopts are, *a.* inflammation with mucous accumulation; *b.* with stricture of the Eustachian tube; *c.* with obliteration of the Eustachian tube. His views of these he introduces with some remarks on catheterism, an operation which is essential both in treating them and ascertaining their nature and extent.

After pointing out the erroneous position assigned to the pharyngeal opening of the Eustachian tube by some authors, Dr Kramer states, that, from a careful examination of the sections of many heads, he has satisfied himself that it forms a slit descending from above forwards, obliquely downwards and backwards, of an oval form, and three-eighths of an inch in length. "The inferior angle of the opening lies a little deeper than the inferior nasal meatus, and the superior angle about as much below the level of the middle meatus. * * Farther, the mouth of the Eustachian tube lies behind the *velum pendulum palati*, and is fixed by its anterior edge to the *hamulus pterygoideus* on each side. From this point the canal extends almost two inches in length, obliquely backwards and outwards, gradually becoming narrower, the beginning of its last third being the narrowest point, precisely where the mucous membrane leaves its fibro-cartilaginous sheath, and passes over the periosteum of the bony portion of the canal, in which the last third of the tube terminates." The diameter of this narrowest point of the tube has been variously given. The author's measurement agrees with that given by Duverney, which makes it a quarter of a line.

Dr Kramer next offers some observations on the instruments and mode of introduction recommended by different authors, and gives an account of his own. He prefers the catheters used by the Montpellier physicians, as well as by Saissy and Itard, of which he gives figures, and describes a frontal bandage, which is a modification of that of Itard.

"Before commencing the catheterism, the frontal bandage is to be placed across the forehead, over the root of the nose, and the straps buckled behind the head. The forceps are to be fixed in the ball and socket joint, and turned upwards, for the convenience of the operator. The patient sits on a stool; the operator standing before him, and having previously oiled the catheter, lays hold of it immediately before the funnel-shaped dilatation, with the thumb and two forefingers of his right hand, (whether it be the right or the left ear, that is to be catheterised) so that the concavity of the instrument is turned downwards. The beak of the catheter is then to be introduced into the *inferior* nasal meatus, and pushed quickly but carefully forwards, *gliding over the bottom of the nasal fossa into* *the top of the pharynx.* This manœuvre must be executed with a delicate steady hand, partly in order to spare the patient pain, and partly in order successfully to overcome the impediments to the progress of the instrument arising from the lateral inclination of the *septum narium*, and the irregularities of the muscular structure, for avoiding which no definite rule can be laid down. Sneezing need never be feared during the introduction; it has never occurred to me during the course of a very extensive practice in this department of the medical art.

"The catheter having been passed into the pharynx, the posterior surface of which the beak must be made to touch (up to which moment the ring, and consequently the beak of the instrument remain directed downwards) the external extremity of the instrument is to be elevated; the beak thus sinks, and, gliding over the posterior round edge of the mouth of the Eustachian tube (the operator at this moment carefully drawing the instrument towards himself) touches the posterior surface of the *velum palati* which is raised; the catheter is then to be rotated a quarter of an inch, on its axis, turning it outwards and upwards at the same time that with a certain degree of force, it is conducted into the mouth of the tube. By careful traction it is found that it is here *held fast* by the anterior cartilaginous edge of the mouth of the canal, which in conjunction with the perfectly convenient situation of the instrument for the patient, affords to a practised hand the surest sign that the catheter has acquired the proper situation. The ring then stands turned a little upwards, in the direction in which the canal extends from the pharynx to the ear."—Pp. 192, 193.

The catheter is maintained in its position by means of the forceps attached to the frontal sinus, and the whole apparatus is so placed that the patient may not only move his head, but speak and hawk, without experiencing any inconvenience. Through the catheter thus fixed, Dr Kramer, following the plan of Deleau, injects air for the purpose of determining the state of the middle ear, instead of water, as recommended by others, and he has described an air press for the purpose of condensing it, so as to give it sufficient force. He does not, however, consider it necessary to warm the air previous to its admission. The apparatus having been adjusted, the operator places his own ear close to that of the patient, which is to be examined, and having opened the stop-cock of the condenser listens to the sound of the air as it rushes into the tympanum.

"If the Eustachian tube, and the cavity of the tympanum are completely free and open, the air rushes in unrestrained, and strikes with an audible shock against the *membrana tympani.* When the first shock of this forcible stream of air is over, or if it has not been so powerful, there is heard, from the continued stream of air rushing into the ear, a blowing and rustling, which appear to issue from the external meatus, and fill the whole ear of the patient. All deviations from this noise (the peculiarity of which can be rendered clear and comprehensible only by repeated observation) are morbid, and afford very certain conclusions as to the particular diseased changes in the organic and functional condition of the ear. Should no air at all pass up to the *membrana tympani*, a catgut bougie should be introduced into the Eustachian tube, which we should try to push up to the *membrana tympani*. This operation succeeds best, if, in the first place, the smallest possible catheter be selected, so that the catgut cannot take a different direction from that of the axis of the curved beak of the catheter, especially on making its exit from the end of the instrument, by which it would be in danger of slipping away from the opening of the Eustachian tube down into the pharynx, and of thus exciting, in a very annoying manner, hawking and cough. In the second place, the beak of the catheter should be directed well upwards, so that it may be, in a manner, hooked on to the superior angle of the mouth of the Eustachian tube. Thirdly, a fine harp-string should be selected (the E. string) as the catgut to be used, on which should be marked the length of the catheter, and farther back that of the Eustachian tube (one inch and three-quarters.) The extremity of the catgut should be made a little soft by biting it, and then passed to the mouth of the Eustachian tube, and thence very carefully forwards, in order to note distinctly any opposition that it may meet with. If it has been made to pass into the Eustachian tube to the extent of fourteen lines, that is to say, through its whole length, usually with a slight sensation of crackling, the patient feels distinctly as if the catgut approached the middle of the meatus, whereas up to that time he often cannot tell whereabouts the point of the catgut is. If the gut be thrust still farther forwards, so as to pass between the handle of the *malleus* and the *incus*, and to the *membrana tympani* beyond, the acuteness of the sensation increases up to the moment, when, accompanied by a lancinating pain, the membrane itself is touched. The patient then imagines that he can lay hold of the gut in his ear, for so deceptive is the sensation, that it seems to pass out of the ear. If the gut is to be allowed to remain in the Eustachian tube, it should be held fast with one hand (it is immaterial which,) after having been drawn out to the distance of one inch from the catheter, not more, in order so to fix it in the given position, that it may neither slip farther forwards, by which it might occasion pain by touching the *membrana tympani*, nor follow the course of the catheter, which is to be removed. With the other hand the catheter should be carefully and gradually drawn out in the direction in which its beak meets with the least opposition; at the same time holding the gut more and more firmly until the catheter has been completely withdrawn from the nostril. The gut should then be snipped off close to the nose, and fastened by means of a strip of adhesive plaster to the *ala nasi*. The patient need not restrain himself in any way, not even in eating. The gut swells and softens, and after several hours becomes so soft, that, by the repeated motions of the pharynx in speaking and hawking, it slips down into the throat, and the patient should seize this moment to withdraw it from the nose." Pp. 201–2.

Of the air-condenser, as it has been most recently improved by the author, and the method of using it, a description, with a delineation, has been already given in our 49th volume, (p. 314.)

a. Inflammation of the mucous membrane of the middle ear with accumulation of mucus.—This generally occurs at an early period of life, and in strumous subjects, though it may occur in the strongest constitutions. The only exciting cause is the application of cold to the head or feet. It frequently happens that only one ear is affected, and if the disease should attack both, it is always more intense and intractable in one than in the other. Although it may last for years, and even for a lifetime, the nature of the disease never changes; it still continues to be merely an accumulation of mucus.

The only symptom, according to Dr Kramer, which is always present, is dulness of hearing, and, therefore, recourse must be had to catheters, through which a stream of compressed air is to be introduced.

"On making this attempt, the air either does not enter at all, or only with considerable effort, and accompanied by a gurgling noise in the middle of the meatus. Tumefaction of the mucous membrane and obstruction of the middle ear from mucus are rendered certain,—when the stream of air passes directly to the *membrana tympani,* accompanied by an audible gurgling noise, and not only occasions an agreeable sensation of relief to the head and ear, and diminution of the tinnitus, but is also *immediately followed by a material improvement in the power of hearing,* which is easily ascertained by the watch, and which, though it may again vanish in the course of a few hours, is restored at each sitting, increases, and gradually becomes established:—or when the stream of air, at first, does not enter the ear at all, and in spite of the greatest attention no noise is heard in the ear, no alleviation ensues, and generally no alteration in the symptoms; and it is only subsequently, after repeated sittings, that small bubbles of air are at first heard to enter the tympanum, or a small, fine, shrill-sounding stream of air passes, which gradually becomes larger and fuller, and mixed with a gurgling sound; and exactly in proportion as the stream becomes fuller and stronger, it is accompanied by *the above-mentioned increasing alleviation of all the complaints, and of the dulness of hearing.* In these cases it may be considered as a rule, that the number of sittings should not exceed four; if after the fourth sitting, no distinctly audible stream of air makes its way to the *membrana tympani,* and no perceptible improvement in the hearing takes place, in this case there is stricture or obliteration of the Eustachian tube, the diagnosis of which will be given in its proper place. If mucous accumulation be associated with tumefaction of the mucous membrane of the Eustachian tube, the gurgling noise is indeed heard, but proportionably weaker, and with a corresponding less degree of amelioration of all the morbid phenomena."—P. 205.

The prognosis is favourable even when the disease has been neglected for years;—for by a proper plan of treatment, it may be either completely cured or very materially alleviated. In recent cases, when the mucus is loose, rather fluid, and confined to the Eustachian tube or its orifice, the disease is on some occasions suddenly terminated by the muscular contractions accompanying forcible gulping or vomiting. The patient feels as if the tube was freed by a sudden pop. This depends on the mucous accumulation in the Eustachian tube being loosened, and permitting the air to strike suddenly against the membrane of the tympanum. This never occurs in cases of long standing, when the quality of the mucus is changed, or when the mucous membrane, leaving the cavity of the tympanum, is affected. In old cases there is a great tendency to relapse. When the patient is of the strumous diathesis, or affected with chronic inflammation of the mucous membrane of the fauces or nostrils, or when the body is lax and adipose, no cure can be expected till these morbid states be removed.

Dr Kramer does not place any value on constitutional treatment of the disease, unless the general health be disordered. The local treatment recommended by him consists in injecting air by means of his apparatus into the pharyngeal opening of the Eustachian tube. For the precautions necessary to be observed, and the objections urged by the author against other plans, we must refer the reader to the work itself.

b. Inflammation of the mucous membrane of the Eustachian tube with stricture.—The only way in which Dr Kramer conceives that this disease can be detected is by examination by means of a string of catgut. When one of the smallest possible size, such as an E. harp-string, has been introduced into the mouth of the Eustachian tube, and is carefully pushed forward, an obstruction is met with, which is either impervious or to be overcome by forcible pressure.

> " In some rare cases a repetition of this opposition may occur at a second spot. If the opposition be not at once overcome, the string should be allowed to rest still for a few moments; and after such a delay, or a day or two later, it may be introduced farther. We then feel distinctly as though the catgut slipped through an annular contracted spot, or passing beyond which it again advances freely. On drawing out the gut again, it is as it were felt to be held fast at the constricted spot, so that it sometimes seems to the patient as though the stricture closed again behind the catgut, or as though it tore out everything along with it, or that everything returned into the ear; from which it may be concluded that there is great narrowing and cartilaginous degeneration at the diseased spot, and that this is beyond all doubt incurable." P. 226.

Though the mucous membrane of the Eustachian tube be swollen throughout its whole extent, the catgut, "by using a little force," will slip through till it reach the membrane of the tympanum, where it occasions a peculiar pricking sensation. On withdrawing the gut, the canal will be completely closed.

The prognosis is very unfavourable. The treatment consists in attempting to counteract the diseased state of the mucous membrane of the fauces, and in introducing bougies.

c. Inflammation of the mucous membrane of the Eustachian tube with obliteration of the canal.—This can be detected only by the catgut bougie, which either will not enter the canal at all, or advances only a short way. Dr Kramer considers the disease to be quite incurable, and deprecates any attempt to remedy it, either by opening the *membrana tympani*, as recommended by Saunders and Itard, by perforating the obliterated part, as tried by Saissy, or by cauterizing the tube as proposed by Perrin.

2. *Inflammation of the cellular tissue and periosteum in the cavity of the tympanum. (True internal inflammation of the ear.)*—This disease exhibits itself in two very different forms, the acute and the chronic, the latter being the more important.

When internal inflammation of the ear appears in the acute form, the patient suffers from severe constitutional irritation and "acute, pricking, burning, tearing, boring, and dragging pains at the bottom of usually only one ear," which often extend to the pharynx, giving rise to *dysphagia.* These pains are increased by all motions of the head and jaw. As the violence of the disease increases, all the parts in the neighbourhood of the ear become affected. The skin covering the mastoid process becomes tumid and red, the eye of the affected side is inflamed, but the *meatus*, at the commencement of the disease at least, remains unaltered. All the general symptoms are aggravated, the night is passed without sleep, and furious delirium supervenes. In the meantime a purulent fluid of an offensive smell, and containing fragments of bone, bursts suddenly through the tympanum, and is discharged either by the external meatus or mastoid process. When that takes place in favourable cases, all the symptoms are alleviated, or disappear, and leave only otorrhœa and dulness of hearing. In unfavourable cases, hectic, with all its concomitants, supervenes, pains in the head return from time to time, and the patient suddenly dies apoplectic.

When a discharge of matter does not occur, death ensues within a few days.

The chronic form of the disease is attended with a degree of pain of a dragging, tearing nature in the ear, tinnitus, dulness of hearing, and great debility. In some cases, a discharge from the ear, with destruction of the tympanum, is not followed by relief. The pain either remains as it was, or becomes more acute, and extends farther into the head, giving rise to a feeling of confusion and heaviness; these are accompanied with dejection and drowsiness, frequent and distinct chilness, and slight delirium, passing into coma, and ending in death. In other cases, otorrhœa does not occur; the pain, though not acute, is more deeply situated; the patient becomes melancholy and dull, notices nothing, moves his head backwards and forwards, holding it between his hands; and at last falls into a comatose state and dies.

In patients who have long suffered from otorrhœa, when acute inflammation attacks the affected parts, the course of the disease is pretty much the same.

The morbid appearances observed after death, both in the acute and chronic form of the disease, are, matter in the cavity of the tympanum, labyrinth, and mastoid cells; softening and carious degeneration of the mastoid process, and more or less of the petrous portion of the temporal bone; discoloration, separation, and thickening of the *dura mater* lining the temporal bone; effusion of purulent matter in the brain and cerebellum, and of serum between the membranes. These serous and purulent accumulations frequently escape by the external meatus. The only treatment which holds out any chance of relief is the antiphlogistic, energetically pursued, at the same time that the organ is soothed by emollient poultices and other means. When the matter is evacuated, the emollient treatment must be pursued, and after all the inflammatory symptoms have been subdued, the cavity of the tympanum may be cautiously rinsed with tepid water. A weak solution of acetate of lead may then be thrown up, and tartar emetic ointment rubbed on the skin below the mastoid process. Dr Kramer disapproves of opening the *membrana tympani*, to evacuate matter in the cavity, because, from the great delicacy of the membrane, it is soon enough eroded. He recommends, however, that the mastoid process should be laid open, whenever fluctuation is discovered, or when the periosteum yields to the pressure of the finger. A cachectic state of the constitution must be treated in the usual manner.

For the remainder of the subjects discussed by the author, the erethistic and torpid form of nervous deafness, ear-trumpets, and his views of deaf-dumbness, we must refer the reader to the volume itself.

In concluding this notice, we may remark, that Dr Kramer's criticisms, though in some cases well merited by the individuals who are their subject, are on several occasions unjust, and on others unnecessarily severe. We would recommend Dr Kramer, when he next criticises the practice of other physicians, to consider whether his own be not open to similar censure. The work, however, deserves an attentive perusal by all members of the profession, and we trust that its now appearing in an English version, which, though in many places ruggedly literal, appears to be faithful, may be the means of attracting their attention to a class of diseases which is too often left to the treatment of ignorant and conceited quacks.

ART. III.—*An Essay on the Antiquity of Hindoo Medicine, including an Introductory Lecture to the Course of Materia Medica and Therapeutics, delivered at King's College.* By J. F. ROYLE, M. D., F. R. and L. S., &c. 8vo, pp. 196. London, 1837.

FEW gentlemen have had opportunities equal to those which the author has enjoyed, of studying successfully the Materia Medica of India; and none have been better fitted for the task by previous education and acquirements, by talents for observation and research, and by ardour in the prosecution of scientific objects. Dr Royle was professionally connected with the military department of the Bengal Presidency; but the Medical Board of Calcutta, instead of employing him in the usual duties of their junior medical officers, thought his services might be more advantageously directed to other objects; and they, therefore, very much to their credit, put him upon that course of investigation, which has led to a more ample acquaintance with the history and present state of the Materia Medica of the East, and more particularly of India, than was before possessed.

In preparing himself for carrying on with efficiency the important operations assigned to him, Dr Royle embraced every opportunity of obtaining as much preliminary information as possible; and with this view he made collections of the various articles employed as medicines in the different parts of our Indian empire; had them arranged and catalogued with their synonyms annexed; and then appended such information as he could obtain in respect to their medical properties, and the countries from whence they were derived. He also had the native works on materia medica collated by competent Hakeems and Moonshees, and by these means, added, we presume, to a respectable acquaintance with the eastern languages, set out with all those prudent preparatory advantages which the importance and extent of his inquiries made desirable.

It can hardly be expected that in this little work the author can give more than an outline of his labours; nor is it possible, amid the details of which it is made up, to offer to our readers any thing like an analysis of its contents. We shall, however, be able to present them with such a general view of his essay, as will serve to make them acquainted with its principal features, and at the same time to exhibit to advantage the industry and ability of the author.

Dr Royle views with much and very natural pleasure the advantages which are afforded to him in the professorship of Materia Medica and Therapeutics at King's College, of presenting, with efficiency, the duties of his department, not only through the means of libraries, museums, and herbaria, but in a particular manner by the liberal donation of a valuable collection of Materia Medica, which the College owes to the Society of Apothecaries. This, we are informed, is deposited in one museum with the collections of botany, mineralogy, and geology; while another contains the collections of zoology and comparative anatomy, in connection with those of human and morbid anatomy. The author at the same time, however, represents himself as in some degree fettered in his operations as a teacher, by the position which his peculiar department occupies in the prescribed course of medical education, where materia medica and therapeutics are placed in the first year of the curriculum of study. This is unquestionably a very objectionable arrangement; for though the articles comprised in Materia Medica may, as objects of natural history alone, be attended to in reference to their nature and sources, their physical characters and chemical composition, and, therefore, independently of much collateral information, yet, when they are viewed as medical agents, having a certain operation upon the human body, a large portion of professional knowledge cannot but be regarded as necessary for the proper appreciation of their effects.

To study adequately the operation of medicines, necessarily presupposes an acquaintance with those laws of physiological and pathological action, which it is the province of a liberal professional education to impart. Therapeutics, therefore, as consisting in the administration of medicines for the purpose of removing the tendency to disease, and of inducing a return to healthy action in the various organs and functions of the body, is the material end and object of other professional studies; and unquestionably ought to follow and not precede them in the course which is laid down.

In considering the mode by which the Materia Medica of the vegetable kingdom is best cultivated, the author prefers, to the artificial system of Linnæus, which is usually taught in this country, the natural method, by which we are best enabled to discuss questions concerning the structure of the several groups of plants, in conjunction with climate, geographical distribution, and properties.

The connection between the medical properties of plants and their structure is a subject which early attracted the attention of botanists; but the progress was inconsiderable, till the celebrated *Decandolle*, whose work on Vegetable Physiology we introduced to the notice of our readers in our forty-third volume,* followed up the subject, and showed, that, " as the effects of the different substances used as medicines, must be owing either to their physical characters, or their chemical composition, so must these depend on the peculiar organization of the vegetable, especially in the organs of nutrition, by which they are secreted." Those families of plants which present most numerous points of analogy in the organs of reproduction, will also display them in the organs of nutrition; but as vegetable secretions or products are mainly dependent on the latter, it will hence follow, that the classification will be of most practical utility which is derived from the organs of nutrition, rather than from those of reproduction. The author gives us several interesting examples of the accordance of the properties of plants, with their classification into natural families. "No one is surprised," says he, "at hearing that the *Gramineæ* of tropical regions are as fitted for food as those of European countries, or that the oak of the Himalaya yields excellent timber; or that pines abound in turpentine, and may be made to yield tar wherever they are found. So the *Rosaceæ* afford us our best fruits; among the *Papilionaceæ*, are found all the legumes used as food in different parts of the world, and the *Labiatæ* yield most of our odoriferous herbs, as lavender, rosemary, thyme, sage, savory, marjoram, and mint. The *Burseraceæ*, a tribe of *Terebinthaceæ*, afford resins combined with essential oil; as we see in the balm of Gilead and Myrrh trees, *Balsamodendron Gileadense* and *Myrrha; B. opobalsamum, Kataf* and *Kalaf*, all give out a balsamic odour. Indian Bdellium is probably produced by *Balsamodendron Agallocha;* Affrican Bdellium is yielded by another of this family, *Heudelotia africana;* Olibanum by *Boswellia serrata; Pistacia Terebinthus* and *Lentiscus*, afford us Chio turpentine and Mastic. The *Laurels* give us the Camphor of Japan; the Cinnamon of China, as well as that of Ceylon; Cassia, Sindoc, Calitlawan, the Malabathrum leaf in India, and the Bay-leaf in Europe."—"So many of the *Guttiferæ* èxude a gamboge-like substance, that we may safely conclude the officinal species, though unknown, to be of this family; as also that the Officinal Rhubarb, though equally unknown, is yielded by a species of *Rheum;* and as the *Umbelliferæ* give us Assafœtida, Galbanum, Opoponax, and Ammoniacum, we infer that they also afford us Sagapenum. The *Cedrelaceæ* are remarkable for their bitterness and astringency, accompanied frequently by an aromatic principle; and thence are endowed with febrifuge properties. So *Soymida febrifuga*, with others, is reckoned in India a good stomachic and febrifuge; the *Khaya* is similarly employed on the banks of the Gambia; *Cedrela febrifuga* in Java, and *Swietenia Mahagoni* in the New World."—"The *Gentianeæ* not only yield bitter roots and herbs in Europe, as gentian and centaury, but in the Himalayas they afford us *Gentiana Kurroa* as a bitter root, and the *Cheretta (Chirayta)* as an herb. The *Nima* of these mountains is as bitter as the Quassia of South America, and both belong to the family of *Simarubeæ*."—Pp. 7, 8.

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* P. 303, and 427.

In countries where the true Cinchona does not exist, others of the *Cinchonaceæ* families are used as substitutes. Of the *Convolvulaceæ*, the Ipomææ furnish purgatives in various parts of the world; as do also the *Cucurbitaceæ*, to which family colocynth, squirting cucumber, and bryony belong.

In connection with this subject, the author mentions a deduction to which he was led by a consideration of the natural affinities of plants. The plants which afford caoutchouc all belong to various milky-juiced families, *Cichoraceæ*, *Lobeliaceæ*, and others, which are remarkable for the strength and tenacity of the fibres they yield for rope-making. In considering this fact in conjunction with that of bird-lime being prepared from plants belonging to families from which caoutchouc can be procured, and comparing these circumstances with the remarkable one, that silkworms, next to the mulberry leaf, prefer the leaves of such plants as afford caoutchouc, he was led to conjecture, that the mulberry might be very likely to contain that substance; which was found to be the case by Mr Sievier, on a careful examination of its sap.

In prosecuting an examination of the details to which his subject leads him, the author considers them under the heads of *Persian*, *Arabian*, *Greek*, and *Indian* Materia Medica. The period embraced by *Persian* writers, who have either written in their own country, or in the Persian language in India, is one of about 400 years. The best known of the Persian works is the *Ulfaz-Udwieh*, which, though it is little more than a catalogue compiled by the physician of the Emperor Shah Jehan, is valuable, as containing synonyms in Arabic, Persian, and Hindooe, in the Roman character, and as having been translated into English in 1793 by Mr Gladwin. The latest and most copious of the Persian works is the *Mukhzun-al-Udwieh*, or Storehouse of Medicine, written as late as the year 1769, and printed at Hoogly in 1824; but the most esteemed is that called *Toohft-ul Moomineen*, written in the year 1669, by Meer Mohummud Moomin, who states, that he is the third in order of time who had written on medicines in the Persian language; the first being in the year 1392.

The Arabian School is generally stated to have existed about 500 years; but the most celebrated of their writers on materia medica, Al-Beitar, who is unnoticed in our histories of medicine, died about 120 years previous to the publication of the first work in the Persian language on that subject. He travelled extensively in the prosecution of his favourite study of plants; and his manuscripts are preserved in the Escurial, and are said to have afforded considerable assistance to the learned Bochart in his work entitled *Geographia Sacra*, in elucidating many of the plants, animals, and precious stones, mentioned in the Scriptures. The Christians were much in request as physicians by the Arabians, and their conduct merited the estimation in which they were held; for when Honain was threatened with death for refusing to prepare a poison, and was asked what prevented him from complying with the Caliph's command, he answered, " Two things, my religion and my profession; my religion, which commands me to do good to my enemies; and my profession, which was instituted purely for the benefit of mankind."

The connection which existed between the Greeks and Egyptians accounts for the frequent appearance of Egyptian remedies among the articles of the Greek materia medica. Theophrastus, who lived in the third century before the Christian era, gives, in his works on plants and minerals, some of the earliest accounts of two of the kingdoms of Nature, as Aristotle, who shortly preceded him, does of the third; and in the first century of the Christian era lived Dioscorides, who is the most copious writer on the materia medica of the ancients. Galen in the second century, Oribasius in the fourth, Ætius in the fifth, Alexander Trallianus in the sixth, and Paulus Ægineta in the seventh, were links in the chain of authors, which, descending to Actuarius in the twelfth, and Myrepsus in the thirteenth centuries, served to connect ancient with modern times. The two last mentioned were, however, subsequent to the chief of the Arabian writers, to whom they were largely indebted for their improved Materia Medica and pharmacy.

The Persian Materia Medica the author considers as the most copious of any in the East; and it is likewise one of the most valuable for tracing the history of the several drugs which have been in use in the old world, from the most ancient to the present times.

There is much difficulty in ascertaining the age at which the *Hindoo* works at present in existence were composed. The Persian authors now in use in India acknowledge having derived their information from Indian and Arabian sources; and Dr Royle feels every conviction, that the Arabs, who were familiar with many of the products of India, were likewise acquainted with its authors on medicine.

Geber, the earliest Arabian chemist, expressly states, that he acquired his science from ancient sages; and the author gives many details, for the purpose of showing that the Hindoos were anciently well acquainted with a great number of articles and operations of chemistry. Of Hindoo medical works, that ascribed to *Charak* is the most ancient; but the treatise of *Susruta*, which ranks the second in antiquity, is considered as the first in merit. By means of the exertions of Professor Wilson, who was long President of the Medical Society of Calcutta, and is now Professor of Sanscrit in the University of Oxford, a knowledge of the contents of those two works has been obtained. From this and some other sources of information, the author has drawn up some account of the medical discipline among the Hindoos in ancient times.

The Hindoos, like ancient as well as modern practitioners, every where but in large towns, practise all branches of the profession; and with much that is fanciful, there are many valuable notices relating to surgery, medicine, materia medica, and pharmacy, in their works. Lithotomy and the Cæsarean section were among their operations; and they describe no less than 127 surgical instruments as being employed by them.

There is much good sense and discrimination in their opinions as to the qualifications of a physician.

"Having completed the indispensable course of study, practice is then to be as indispensably acquired; for he, who is versed in both, deserves to be honoured as the chief of physicians. As it is said (*verse*), he who is acquainted with the science of medicine only from studying the books which treat of it, and is not well grounded in the practice also, is bewildered when called upon to attend the sick, like a coward in the day of battle. He who engages in practice, presumptuously disregarding written science, is held in no estimation by the virtuous, and merits death from the King. Both these descriptions of persons are unskilful, incompetent in their profession, possessed of only one branch of the necessary qualifications, like birds with but one wing. The medicaments, which contain within them the properties of ambrosia, are as sharp weapons, the deadly thunderbolt, or fatal poisons when administered by the ignorant;—let no such man be trusted. He, who, imperfectly master of his profession, treats maladies which require either medicines or the knife, murders his patients,—the vile practitioner! through his own cupidity, and the fault of the ruling authority. But he, who is conversant with both theory and practice, is competent to attain the object of his professional career, borne onwards like a war-chariot on two wheels through the ranks of the enemy."—P. 49.

A physician, it is said, "must be a person of strict veracity, and of the greatest sobriety and decorum; he ought to be thoroughly skilled in all the commentaries on the Ayurveda, and be otherwise a man of sense and benevolence; his heart must be charitable, his temper calm, and his constant study how to do good. Such a man is properly called a good physician; and such a physician ought still daily to improve his mind by an attentive perusal of scientific books.

"When a sick person expresses himself peevishly or hastily, a good physician is not thereby provoked to impatience; he is mild, yet courageous; and cherishes a cheerful hope of being able to save his patient's life: he is frank, communicative, impartial, and liberal; yet ever rigid in exacting an adherence to whatever regimen or rules he may think it necessary to enjoin.

"Should death come upon us, under the care of a person of this description, it can only be considered as inevitable fate, and not the consequence of presumptuous ignorance."—P. 51.

The materia medica of the ancient Hindoos affords a long list of useful medicines, of which many still continue to be employed; but Professor Wilson remarks, that, in proportion as the works in which they are mentioned are made modern, "the compounds become more extravagant, and assume a more important place in the practice."

In the work of *Susruta*, medicines are divided into locomotive and non-locomotive; the former including those from the animal kingdom, the latter, plants and minerals. Heat and cold, light and darkness, and sol-lunar influence, were much attended to in the treatment of diseases. In the *Kalpastanum*, medicinal drugs and plants are extensively treated of; and this work is the more interesting, as giving, probably, the earliest notices respecting botanical geography; "the soils and climates where different kinds of plants grow; the soils and seasons whence and where medicinal plants should be collected; modes of keeping medicines, and their preparation; time during which they remain good; with the weights and measures to be used." Various ceremonies are occasionally employed in taking physic; and it is in particular recommended for his good, that "before the patient takes the medicine, the God of Physic is to be worshipped in the person of his deputy, the physician, *who must be paid well for his services*." We fear, from this piece of advice, that in ancient, as well as modern times, the gratitude of the patient has not always survived the malady of which he has been freed.

It appears from the information of Dr Royle, that some valuable notices respecting early Hindoo medicines were published anonymously by Professor Wilson, in the Oriental Magazine, printed at Calcutta in February and March 1823; and as this work is not generally known, he gives a few abstracts from the notices and translations, with some of which we shall conclude this article.

Professor Wilson considers the general proficiency of the ancient Hindus in medicine and surgery to have gone as far as was practicable, "before anatomy was made known to us by the discoveries of modern inquirers."

"It might easily be supposed, he states, that their patient attention, and natural shrewdness, would render the Hindus excellent observers; whilst the extent and fertility of their native country would furnish them with many valuable drugs and medicaments. Their *Nidan*, or Diagnosis, accordingly appears to define and distinguish symptoms with great accuracy, and their *Druvyabhidhana*, or Materia Medica, is sufficiently voluminous. They have also paid great attention to regimen and diet, and have a number of works on the food and general treatment, suited to the complaint, or favourable to the operation of the medicine administered. This branch they entitle *Pathapathya*. To these subjects are to be added, the *Chikitsa*, or medical treatment of diseases—on which subject they have a variety of compositions, containing much absurdity, with much that is of value; and the *Rasavidya*, or Pharmacy, in which they are most deficient."

—" The *Ayur Veda*, as the medical writings of highest antiquity and authority are collectively called, is considered to be a portion of the fourth or *Atharva Veda*, and is consequently the work of BRAHMA. By him it was communicated to DACSHA, the *Prajapati*, and by him, the two ASWINS, or sons of SURYA, the Sun, were instructed in it, and they then became the medical attendants of the gods,—a genealogy, that cannot fail recalling to us the two sons of *Esculapius*, and their descent from *Apollo*. Now what were the duties of the ASWINS, according to Hindu authorities?—the gods enjoying eternal youth and health, stood in no need of physicians, and consequently these held no such sinecure station. The wars between the gods and demons, however, and the conflicts amongst the gods themselves, in which wounds might be suffered, although death was not inflicted, required chirurgical aid—and it was this, accordingly, which the two ASWINS rendered. They performed many extraordinary cures, as might have been expected from their superhuman character."

The work of Charaka is still extant; but that of Susruta is at present the chief guide among the Hindoo practitioners. The latter is divided into six portions—the *Sutra St'hana*, or Chirurgical Definitions; the *Nidana St'hana*, or section on Symptoms, or Diagnosis; *Sarira St'hana*, anatomy; *Chikitsa St'hana*, the internal application of medicines; *Kalpa St'hana*, Antidotes; *Uttara St'hana*, or a supplementary section on various local diseases, or affections of the eye, ear, &c.—In all these divisions, however, surgery, and not general medicine, is the object of the work of *Susruta*.

" The *Ayur Veda*, which originally consisted of one hundred sections, of a thousand stanzas each, was adapted to the limited faculties and life of man, by its distribution into eight subdivisions, the enumeration of which conveys to us an accurate idea, of the objects of the *Ars medendi* amongst the Hindus. The divisions are thus enumerated—1. *Salya*; 2. *Salakya*; 3. *Kaya chikitsa*; 4. *Bhutavidya*; 5. *Kaumarabhritya*; 6. *Agada*; 7. *Rasayana*; and 8. *Bajikarana*.—They are explained as follows:

" 1. ' *Salya* is the art of extracting extraneous substances, whether of grass, wood, earth, metal, bone, &c. violently or accidentally introduced into the human body; with the treatment of the inflammation and suppuration thereby induced; and by analogy, the cure of all phlegmonoid tumours and abscesses. The word *Salya* means a dart or arrow, and points clearly to the origin of this branch of Hindu science. In like manner the 'Ιατρὸς, or physician of the Greeks, was derived according to *Sextus Empiricus*, 'Ιὸς, an arrow or dart.

" 2. ' *Salakya* is the treatment of external organic affections, or diseases of the eyes, ears, nose, &c.; it is derived from *Salaka*, which means any thin and sharp instrument; and is either applicable in the same manner as *Salya*, to the active causes of the morbid state, or it is borrowed from the generic name of the slender probes and needles, used in operations on the parts affected.

"3. '*Kaya Chikitsa* is, as the name implies, the application of the Ars medendi *(Chikitsa)* to the *body* in general *(Kaya)*, and forms what we mean by the Science of Medicine—the two preceding divisions constitute the Surgery of modern schools.

"4. '*Bhutavidya* is the restoration of the faculties from a disorganized state, induced by Demoniacal possession. This art has vanished before the diffusion of knowledge, but it formed a very important branch of medical practice, through all the schools, Greek, Arabic, or European, and descended to days very near our own, as a reference to *Burton's* Anatomy of Melancholy may prove to general readers.

"5. '*Kaumara bhritya* means, the care of infancy, comprehending not only the management of children from their birth, but the treatment of irregular lactic secretion, and puerperal disorders in mothers and nurses—this holds with us also the place that its importance claims.

"6. '*Agada* is the administration of antidotes—a subject which, as far as it rests upon scientific principles, is blended with our medicine and surgery.

"7. '*Rasayana* is chemistry, or more correctly alchemy, as the chief end of the chemical combinations it describes, and which are mostly metallurgic, is the discovery of the universal medicine—the elixir, that was to render health permanent, and life perpetual.

"8. 'The last branch, *Bajikarana,* professes to promote the increase of the human race—an illusory research, which, as well as the preceding, is not without its parallel in ancient and modern times.

"We have, therefore, included in these branches, all the real and fanciful pursuits of physicians of every time and place. SUSRUTA, however, confines his own work to the classes, *Salya* and *Salakya*, or Surgery; although by an arrangement not uncommon with our own writers, he introduces occasionally the treatment of general diseases, and the management of women and children, when discussing those topics, to which they bear relation."

—"The practical part of the subject of Surgery is preceded by a few general remarks. 'Living bodies are composed,' it is said, 'of the five elements, with action or life superadded: they are produced from vapour, vegetation, incubation, and parturition, as insects, plants, birds, fishes, reptiles, and animals. All the Hindu systems consider vegetable bodies, as endowed with life. Of animals, man is the chief, and in proportion to his complicated structure is his liability to disease. The disorders of the human frame are of four kinds; accidental, organic, intellectual, and natural. The injuries arising from external causes form the first class; the second comprehends the effects of the vitiated humours, or derangements of the blood, bile, wind, and phlegm; the third class is occasioned by the operation of the passions, or the effects on the constitution of rage, fear, sorrow, joy, and others; and the last is referable to the necessary and innate condition of our being, as thirst, hunger, sleep, old age, and decay."—Pp. 57–59.

Professor Wilson likewise gives an account of the instrumental part of the medical treatment, and mentions the various devices and contrivances by which the Hindus attempted to supply the only effective vehicle of operative instruction, human dissection. Among them were incisions of plants; of skins or bladders, filled with paste or mire, of the fresh hides of animals, and of the vessels or other parts of dead animals, which last seems to indicate an evaporation from notions of impurity which could hardly be expected to exist among them. Caustics and cauteries were also in use; the former chiefly when the surgeon had to deal "with princes and persons of rank, old men, women and children, and individuals of a timid and effeminate character."

The operations of the Hindus were bold and hazardous; but they were rude, and imperfectly described; and their being attempted at all is most extraordinary, unless "their obliteration from the knowledge, not to say the practice of later times, (as Professor Wilson well remarks,) be not considered as a still more remarkable circumstance." The period and causes of the disappearance of surgery among the Hindus, which is evidently of comparatively modern occurrence, would, he adds, be an inquiry of some interest.

ART. IV.—*A Treatise on the Nature, Symptoms, Causes, and Treatment of Insanity, with practical observations on Lunatic Asylums, and a description of the Pauper Lunatic Asylum for the County of Middlesex, at Hanwell, with a detached account of its management.* By Sir W. C. ELLIS, M. D., Resident Medical Superintendant, and formerly of the Asylum at Wakefield. 8vo. London, 1838, pp. viii. and 344. One Plate.

IT must be well known to several of our readers, that Sir William Ellis has devoted himself for a number of years to the treatment of insanity, that in his judicious endeavours to ameliorate the condition of those labouring under mental aberration, he has been assisted by his amiable and talented lady, and that the success of their joint efforts has been such as to place those institutions over which he has presided in the first rank as asylum in this country. The work of an author so competent to give information on the subject to which he has devoted himself so long, demands a lengthened notice, and we shall, therefore, in the following pages, endeavour to lay before the reader an analysis of its more important parts.

The volume contains a dedication, a preface, nine chapters, and an appendix. The dedication, and preface, and first chapter, we shall not notice, but proceed at once to the consideration of what follows.

In the second chapter, Sir W. Ellis presents us with his view of the nature of insanity, which he distinguishes from idiocy, eccentricity, and moral evil. In our opinion it would have been better to have used insanity in a wider sense, and to have adopted some other term to have expressed those forms of it to which he has applied the generic term. Since, however, the author has thought it right to do otherwise, we think it necessary to warn our readers to keep in view the distinction which he has made, as otherwise they may misapprehend his doctrines, and consider them to be erroneous and inconsistent, when in reality they are chargeable with neither error nor inconsistency.

Sir W. Ellis sets out by observing, that all animals possess a portion of mind or instinct suited to their several conditions, to which the developement of the nervous system corresponds. Man, possessing a bodily organization and mental faculties, similar in their nature to those of animals, though more perfect "in their kind, is farther endowed with higher and nobler faculties, having the capability of knowing, worshipping, and loving God, and receiving the influences of the Holy Spirit," and this is accompanied by a more elaborate cerebral organization, many parts of which are not found in any other animal, though there is no other portion of the human body which is not more or less developed in one species or another.

The author conceives that in each class of animals there is a certain limit to the manifestation of mental power, and that a great difference in their capabilities exists in the individuals of each class. In judging, then, whether the functions are healthily performed, we must look at the previous habits and capabilities of the species, and ought not to consider the absence of that which is not usually found to exist, as any indication of disordered function. In like manner the existence of a capability much superior to that found in other species, does not of itself constitute any evidence of soundness, because the natural powers and habits are different. The same rule is applicable to different individuals of the same species, and particularly to man.

"We know, from experience, that an immense difference, both in physical and mental powers and habits, from some cause or other, exists among men. Whether this would, or could not have been obviated, by previous education, is foreign to our present consideration; although I think that there is very little doubt, that differences do exist, which no external circumstances could remove. We should be unable to form any opinion of the soundness of a limb or muscle, merely from knowing its absolute power. The arm of a powerful man, though in a state of disease, may be able to lift a much greater weight than the perfectly healthy arm of a weak and delicate one. Before the present absolute power then can be the test, we must know the previous capabilities. Ought it not then to be the first object of our inquiries, in estimating the sanity of an individual, carefully to investigate what have been the previous habits and powers of his mind; what has been the state of his sentiments and passions; and what has been his general conduct? And would it not be irrational to conclude that a man, possessing great mental powers, is necessarily sane, because he is capable of performing with accuracy certain mental operations? and equally irrational to conclude, that an individual of weak mental powers, is not sane, merely because he is incapable of performing similar operations? But should we not, in either case, be justified in pronouncing the individual sane, when the manifestations of his mind, his sentiments, passions, and general conduct, continue in accordance with his previous powers and habits? These may have been such that the individual has been incapable of performing the relative duties of life, and he may have been idiotic or imbecile; but such cases do not come within our present consideration.

"We arrive, then, at the general conclusion, that independently of cases of idiocy, imbecility, eccentricity, and moral evil, which will be the subject of future consideration, man is sane, when, as we have stated above, the manifestations of his mind, his sentiments, passions, and general conduct, continue either to improve, or to keep in accordance with the exhibitions of his previous powers and habits. And this, too, whether the mental powers are great or small; and whatever may have been the degree of cultivation, and however great the difference between the individual and others."—Pp. 15, 16, 17.

From the passage quoted above, it appears that Sir William Ellis uses the term insanity, as expressive of a deranged state of the mind, whatever may have been the amount of power previously manifested. This view of the subject is one of great practical utility in the treatment of the insane. It shows the practitioner the bounds within which his efforts must be limited, and prevents much time from being wasted in useless or injurious attempts to effect more than the circumstances of the case will permit.

The author next proceeds to show that in insanity, using the word in his restricted sense, the alteration characteristic of the disease, is, "in extreme cases, and most probably in all instances, accompanied by diseased organization, or by diseased action in the brain." This alteration, however, may be combined with every variety of disease, though with some more frequently than with others, while in certain instances it may result from the brain sympathizing with diseased parts. The objections which may be made to his doctrine are stated and answered by the author.

> " It is contended by some, that insanity is not a disease of the brain, but of the mind itself; and that, in the same way as fever is but an attendant on fractures and various bodily diseases, so the unhealthy state of the brain, which accompanies insanity, is but a consequence of the diseased mind. But, if that were the case, in the same way as fever would not of itself bring on a fracture, so, in no instance, where disease in the other parts of the body, has by sympathy caused disease in the brain, ought insanity to ensue. But we know, and shall have occasion to bring forward many cases, in which the insanity arose entirely from diseased action in the abdominal viscera, affecting the brain by sympathy, and in which it was removed as soon as the viscera were restored to their healthy state and ceased to irritate the brain. In the consideration of this part of our subject, however, there is one objection, which as it is enforced by the respectable authority of the late Dr Halloran, will demand our attention. The substance of the doctor's argument, which occupies several pages of his work, is, that there are cases in which insanity must be considered solely a disease of the mind, because there are instances, in which it has been cured instantaneously by the operation of moral causes.**** Now had we no instances where diseases, universally allowed to be bodily, were as instantaneously brought on and cured also by the operation of moral causes, as these which are said to be purely mental, the doctor's argument might be perfectly valid. That this, however, does occur, is so universally admitted as hardly to need any proof."—Pp. 25, 26.

In illustration Sir W. Ellis adduces some cases, and justly infers that the susceptibility of cure by moral causes, being not confined to mental diseases, furnishes us with no test by which we can determine whether insanity be mental or corporeal. The same reply may be made to the argument drawn from the production of insanity, by powerful emotions of the mind. These have been known to produce severe bodily disease, and even death itself.

The last objection brought forward is, that insanity cannot be a disease of the brain, because disease of the brain to a great extent may exist without it.

> " The objection may thus be answered. It is from our ignorance of the quantum of disease which must exist, according to the particular constitution, before certain consequences are produced. We know from *post mortem* examination, that a disease of the lungs has existed to such an extent, as would have been attended with the most painful consequences to some individuals, and yet so far from the usual signs (not stethoscopic) of consumption being exhibited,

no disease of the lungs whatever was suspected. Yet no one would argue that consumption is not a disease of the lungs. By a parity of reasoning, therefore, we ought not to contend that insanity is not a disease of the brain; because diseased brain does not always produce diseased manifestations of the mind. Having then seen that in insanity there is always some injurious alteration, either in the intellectual manifestations, or in the conduct, or in both; and having shown that such alteration is in cases of insanity, accompanied with diseased action, if not with diseased organization of the brain, we arrive at the conclusion that insanity is a disease of the brain, causing or at least co-existing with, an injurious alteration in the intellectual manifestations, or in the conduct, or in both."—Pp. 29, 30.

The author next considers to what extent this alteration must exist, before we can pronounce an individual to be insane in the common acceptation of the word, and comes to the conclusion, that when the perceptions, judgment, sentiments, or passions, are so far deranged as to render him incapable of managing his affairs, or dangerous to himself or the public, it is justifiable to consider him insane, and place him under restraint. When the symptoms indicate the existence of diseased action in the brain and nervous system, requiring treatment to which the patient will not submit, although he may be capable of pursuing his usual occupations with his usual ability, and be not only harmless, but capable of conducting himself in society, it is clear that his conduct is injurious to himself, and he may therefore be subjected to the restraint necessary to secure his restoration of health.

" The instances * * in which an individual can with safety be allowed to go at large, when his sentiments or his feelings are affected, will not be so numerous as when the disease attacks the intellectual faculties only. For it is much more easy to fulfil the relative duties of life with diminished powers of perception or reflection, than to act correctly when under the influence of deranged and excited passions."—P. 39.

The following sentence expresses the author's opinion respecting the responsibility of the insane.

" If the paroxysms, however violent, result from causes within the immediate control of the individual, he ought to be amenable to the laws for his actions; if, on the contrary, they have their origin from sources entirely, or remotely out of his reach, justice, as well as humanity, would attribute the act to madness, and forbid his punishment."—P. 40.

This principle is undoubtedly sound, though in most cases it is extremely difficult to apply it practically.

Sir W. Ellis devotes the third chapter to the consideration of the causes of insanity. Before discussing these he notices hereditary predisposition to the disease. Out of 1380 patients, 214 were ascertained to have been previously insane, and in 125 of these no cause was assigned except a hereditary tendency. Of the remaining 89, 65 owed their origin to moral causes, and 24 to blows on the head. It is probable, however, that this hereditary predisposition may in many cases be counteracted by a proper course of education, and that a bad system of training will entail a tendency to mental aberration on those whose progenitors have been perfectly sane.

"Indeed, we are all probably more indebted for our sanity to circumstances and to education, than we should at first be willing to acknowledge. When in early life, the inclinations have never been thwarted, and the passions have been allowed to remain unsubdued, the disappointments and reverses of fortune, which almost invariably attend every human being in his passage through this world, frequently cause such over-anxiety in the mind, before unaccustomed to restraint, that it is no longer capable of abstracting itself from the consideration of the painful events; and its organ, the brain, from over-exertion, becomes diseased as the consequence. When we find, then, that distressing circumstances, combined with the want of proper education, are very frequently sufficient to produce insanity, in those who have no hereditary predisposition to it, how manifestly important is it for those, who have the care of children, whose parents or ancestors have been deranged, to teach them from their earliest infancy, habits of self-government; and afterwards to place them in situations of life, where they may have the prospect of moderate and certain success, rather than the doubtful hope of aggrandizement, with the possibility of failure."—Pp. 43–44.

Sir W. Ellis very properly deprecates those premature attempts to cultivate the intellect, which are so fashionable in the present day. We agree with him that the moral education of the child may and ought to be commenced at a very early age; but the system of tasking the mind of infants adopted not only in infant schools, but in the families of some from whose judgment and information we should not have expected the perpetration of so great an absurdity, has a direct tendency to weaken the intellectual powers, and to render the rising generation peculiarly liable to insanity and other affections of the nervous system.

There are some cases in which the predisposition is too strong to be counteracted by any plan of education, even when the individual is placed in the most favourable circumstances; and when the disease has assumed any particular form, especially that of a propensity to suicide, this form is very frequently manifested in the descendants.

The author has no doubt that the intermarriage of near relations produces in the offsprings a tendency to insanity. He does not presume to offer any explanation of this, but of the fact he declares himself certain.

The immediate causes of insanity may be divided into two classes; 1*st*, those which act primarily on the brain and nervous system; 2*d*, those which produce the disease by sympathy. Under the first class are comprehended blows on the head, *coup de soleil*, old age, over-exertion of the brain, distressed circumstances, intense thinking on religious subjects, grief, terror, and any feeling which excites the brain to undue action. Under the second class may be enumerated diseases of the chylopoietic viscera, affections of the lungs, exposure to cold, suppression of the natural secretions, external or internal evacuations, pregnancy, affections occurring in the puerperal state, fevers, vice of every kind, but especially masturbation and inebriety, gout, dropsy, &c. It is not our intention to notice all these. Of a few, however, of the most important we shall give the author's views. Of over-exertion of the brain, the author thus speaks.

> "By far the most general primary cause of diseased action of the brain, and therefore of insanity, is over-exertion. When the brain has been for too long a time intensely employed upon any subject, it is thrown into such a state of excitement, that its operations are no longer under the control of the will; the incipient stage of insanity then commences, a superabundant flow of blood is propelled to the head, irritation and want of sleep are the immediate consequences, and, if proper treatment be not applied, inflammation is the ultimate result. This diseased action, if unchecked, produces diseased organization, or that chronic state of insanity, which is attended by congestion of the vessels, the opacity of the membranes and serous effusion under them, and in the ventricles, so generally found in the heads of those who have been insane for any length of time.
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> "To this over-exertion we must attribute an immense number of the cases arising from moral causes; for, as the brain is the organ of the mind, not only will an undue exertion of the sentiments and passions cause this irritation, but too continued thought on subjects difficult to be comprehended, or even on those which are within the grasp of our understanding, when they interest us too deeply, is quite sufficient to produce such over-excitement."—Pp. 57, 58.

In the asylums at Wakefield and Hanwell, Sir W. Ellis had ample experience of the effect of distressed circumstances in producing insanity, since more inmates were sent to these establishments whose affections proceeded from this, than from any other moral cause. These cases generally occur among married persons, and it is a lamentable fact, most frequently among the honest and the industrious. This is easily accounted for. A poor man, who, by dint of steady industry, has been enabled to maintain his family in respectability, is suddenly, by some of those causes which periodically appear in this country, thrown out of employment, or has his wages so far reduced as to render him unable, by his utmost exertions, to procure the bare necessaries of life for his wife and children. He struggles on till dire necessity forces him to apply to the parish for assistance, and then receives what will scarcely support the existence of those most dear to him. In other cases, he finds himself unable to make up his mind to degrade himself by asking parochial relief, .and suffers the extremities of want. His body becomes emaciated, and the brain, participating in the general weakness, is unable to endure with impunity the state of action into which it is thrown by anxiety and sorrow. This is no exaggerated picture. Some affecting cases are given in the volume before us, which fully corroborate the statements just made.

> " This state of poverty, too, is not only a source from which the disease originates, but it very frequently is the cause of relapses. Removal from the scenes of misery, which have been so painfully felt, and occupying the mind with other objects, aided by the influence of good diet, have often produced very salutary effects in a very short time, and ultimately restored the patients to sanity. A return to the poverty which they had left, has, however, in many instances, brought on fresh attacks almost immediately. This is a fact that cannot be too forciby impressed on the minds of those whose duty it is to watch over the poor. A few pounds judiciously applied in such circumstances would often not only rescue a fellow creature from the sufferings attendant on this disease, but, in addition, save the parish the expense of maintaining the man himself, probably for life, and his family until they can provide for themselves.
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> " Within the last few years, by the munificent bequest of L.1000 from the late John Harrison, Esq. of London, to the Asylum at Wakefield, the visiting magistrates of that institution have been enabled to bestow a donation of a few pounds, on patients who have been discharged cured, when their circumstances have required such assistance. The cheering influence upon the mind, from the possession of such a little independence, upon which they could rely, without applying again to the overseers for assistance, until they could obtain employment, has, I have no hesitation in saying, in many instances, preserved them from the immediate recurrence of the disease."—Pp. 64, 65.

Next to distressed circumstances and grief, intense thinking on religious subjects was the moral cause which produced, as far as could be ascertained, the greatest number of cases in the institution at Wakefield. From what is stated by the author and others, as well as from what we ourselves have witnessed, it appears to us that deep reflection on topics connected with religion leads to insanity in three classes of individuals only; 1*st*, in those who have led dissolute lives, and have been affected with remorse on some striking impression being made on them by calamity, or on the denunciations of vengeance against sin contained in the Scriptures, being forcibly placed before them by some of those preachers who take more pains to exhibit the threats, than to point out the promises of the Gospel; *2d*, in those predisposed to insanity; *3d*, in those who have been educated according to the gloomy principles of some sectarians, who consider mysticism and asceticism as the only principles of religion. When Christianity is exhibited in its proper garb, and the individual has been imbued with its principles from his youth, and accustomed to act in obedience to them, we can conceive no better safe-guard against insanity, whether there be a hereditary tendency to the disease or not. But a knowledge of the points in dispute between sects, and of abstruse views of theology does not constitute religion, and the excitement attending religious, or, as they should rather be termed, theological discussions, has a great, if not a greater tendency to unhinge the mind, than any other moral excitement, affecting a large mass of the people. Where in Great Britain do we find most instances of madness from erroneous views of religion,—not in those places where the established clergy inculcate the pure and rational doctrines of the church, unobstructed in the fulfilment of their duty by the fanaticism of sectarianism, or the bigotry of infidelity; but in situations where all that is holy is daily discussed with irreverence, and where rival sects vie with each other in their mysticism, and in their appeals to the passions.

We shall not advert to any of the other causes enumerated above, except dropsy, the author's views of which, and the conclusion of the chapter, we shall give in his own words.

"Dropsy is another disease, which my own experience would not lead me to assign as a cause of insanity. That dropsical affections have existed to a considerable extent amongst the patients, both at Wakefield and Hanwell, I cannot deny; but they have usually occurred amongst those who have long been previously insane, and have generally been the symptoms of a gradually breaking up of the constitution, rather than the cause of the disease. They are generally soon after followed by death."—P. 101.

"Whatever may have been the cause, in a very large proportion of *post mortem* examinations of persons who had been insane for some time previous to death, the appearances of the brain clearly indicate the existence of long continued inflammatory action, that is, of an unhealthy excess of blood; and omitting the consideration of cases of compression, *** may not its progress be thus traced? The brain, or more frequently some portion of it only, at the commencement of the disease, being unduly exercised, or suffering from irritation, caused by sympathy with some other diseased part of the body, demands and receives an accelerated supply of blood; this accelerated supply, unless the cause be removed, continues, the tone of the brain gradually becomes weakened, and a morbid structure eventually takes place, not only in the portion of it at first attacked, but by degrees in the whole mass and in the membranes. The effusion of serum in the ventricles, and under the membranes, is the consequence of this diseased accelerated action; and it increases in quantity as the disease advances. The fact, that pain is frequently not felt in any part of the head, is no objection to the theory, as on dissection it has been discovered that organic disease has existed to a very great extent, yet the patients had never complained of any pain; nor does the circumstance that in mania, large bleedings have seldom produced much permanent relief, militate against it. In all those cases where insanity has not arisen from direct physical injuries, the result of the excessive bleedings from the system is to weaken the strength of the patient, but not necessarily to remove the cause of the diseased action. If that be purely moral, of course this will be unaffected by the bleeding, and will still continue to produce an over-exertion of the brain or of some part of it, and although the general volume of the blood will be diminished, yet the brain will receive an undue share of that which remains in the system, and the delusion, which is the result of this diseased action, will continue. If the cause of the disease be sympathy, the bleeding will be of use or not, according as it affects the disease of the part with which the brain sympathizes: but this subject will be considered more fully in the chapter on treatment."—Pp, 101, 102, 103.

The fourth chapter is devoted to the Symptoms of Insanity. The various modifications of the affection are so numerous as to render it impossible, within a moderate compass, to give an account of each. Accordingly, Sir W. Ellis considers those only which are important, and of most frequent occurrence.

In organic disease of the brain, one of the first symptoms observed is a gradual confusion of the intellectual faculties, diminished acuteness of the senses, embarrassment in speaking, and a slight difficulty of articulation, as if the tongue was somewhat paralyzed. In this stage the answers of the patient when roused are rational. As the disease advances the limbs become torpid, and the indisposition to muscular exertion is gradually increased. In consequence of the circulation becoming languid, there is great congestion in the vessels of the extremities, particularly in those of the legs and feet, which are cold, purple, and often œdematous. Emaciation gradually takes place, and death puts an end to the scene.

Insanity, arising from slow, spontaneous inflammation of the brain or its membranes, is often preceded by severe continued pain in some part of the encephalon, aggravated by all mental exertion. The various ideas which seem to float across the mind of the patient make no permanent impression, and he is conscious of his inability to arrest or control them. In some cases the senses become extremely acute, especially that of hearing. When insanity is the result, the symptoms are the same as if it had arisen from diseased action produced by moral causes.

In patients who become insane from moral causes, abstraction of mind is usually the first symptom which is observed.

> "The ordinary duties of life are either altogether neglected, or only performed upon the pressing solicitation of friends. After this state has continued for a short time, it becomes necessary, if we wish to arrest the attention of the patient, to speak to him loudly and repeatedly; and when, at last, he seems conscious of what is said, he appears as if just aroused from a dream, and relapses into the same state of forgetfulness, as soon as the sound of the voice has ceased to vibrate on his ears: his whole air and manner evidently indicate that the inner man is dwelling upon a subject far different from that about which he is being addressed. The general desire to please no longer influences the character; and the dejected looks, and the forlorn dress, sufficiently proclaim that the mind is entirely absorbed in its own contemplations."—P. 106.

This is the period when the most active measures ought to be adopted, because by the proper application of remedies the disease, which is, in the most favourable circumstances, difficult to treat, may be prevented.

Depressing causes generally produce silent abstraction. Insanity produced by joy or unexpected success displays itself in the increased quickness and vivacity of the demeanour, incessant talking, and extravagant expressions of hope. This is as indicative of an unhealthy action of the brain and nervous system, and requires as much attention as the abstraction just mentioned. We ought never to wait for the display of incoherence, or till the mind, when called into action, is incapable of displaying its usual powers. These are the last and severest consequences of an unhealthy action in the brain, which may exist without producing them for a considerable period.

Dyspepsia and hypochondriasis are the premonitory symptoms of insanity, arising from the brain sympathizing with the chylopoietic viscera.

When the unhealthy action of the brain has proceeded to such an extent as to produce insanity, the symptoms depend very much upon the natural character of the patient, except in the case of organic lesion. The most frequent are a constant feeling of suspicion, religious delusions, fear of witchcraft, and high notions of consequence and ability.

The author remarks, that very few of the cases admitted into public institutions are entirely cured, when attended with suspicion or a fear of witchcraft. This he attributes to the diseased action of the brain being too long neglected, in consequence of its coming on so slowly, and its being at first, apparently so little injurious to the patient or society.

" Another very curious and frequent effect produced on the mind by insanity, is the hypochondriacal supposition of the existence of venereal diseases. So strong is this delusion, that in one instance, although there was no possibility of the disease having existed, the patient fancied she had been infected by it, in some unaccountable mode, and could not rest satisfied until put under a course of what she imagined to be a course of mercurial medicines. After having taken these for a short time, though nothing more than pills made of bread crumbs, the patient, from the expectation that they were to produce salivation, spat such a quantity of saliva as to require a vessel constantly by her side for that purpose. After this had continued for some time, she imagined that the medicine had produced its effect; she discontinued the bread pills, and the excessive action of the salivary glands ceased."—P. 114.

A tendency to suicide is a very general, and in many cases the only symptom of insanity. Some individuals are constitutionally so melancholy in their dispositions, that trifling circumstances, which would be disregarded by persons of another temperament, induce an unhealthy action of the brain, which leads them to commit suicide. This, however, may be removed as speedily as other forms of insanity, provided the patient be carefully watched, and the proper treatment be early employed. Those with this propensity have periods of convalescence and an exacerbation, in the same manner as patients affected with any other species have their lucid intervals and paroxysms, and during the intermission personal restraint is unnecessary.

Many cases of suicide in those predisposed to it arise from the brain sympathizing with the liver, which will not appear wonderful when we consider the depression of spirits which accompanies diseases of that organ.

A peculiar expression of the countenance, and especially of the eye, has been supposed by some authors to be a constant attendant on a disposition to suicide. This is undoubtedly true in a great many instances, and may be accounted for on the general principle, that all predominant feelings or passions impress upon the countenance an appearance indicative of the character. In many cases, however, the most experienced physician will be unable to detect by mere inspection either a disposition to suicide or insanity.

" The particular mode by which suicides are desirous of accomplishing their purpose, appears to be a matter of much thought and consideration; and after the plan is once settled, they seem to neglect all other means which may offer themselves, until they have an opportunity of perpetrating it in that particular way."—P. 120.

" It may be practically useful to all who have the immediate care of suicidal patients to bear this in mind; and if they can find out that any particular plan is contemplated, they ought to be especially careful to remove the means of accomplishing it out of their reach, and to prevent their having an opportunity of carrying their particular plan into execution."—P. 122.

The chief symptoms of a propensity to suicide are general despondency and great abstraction of mind, arising very frequently from the attention being directed to the procuring of the means of accomplishing the purpose securely. If prevented, the patient assumes in the presence of others an affected cheerfulness, which, however, soon gives way when he is alone. An attempt to commit suicide is seldom made in the presence of others.

"Suicides appear sometimes to take place from a sudden impulse, where no disposition to self-destruction has been previously shown or suspected. A young woman, about 20 years of age, who had been insane but a short time, and appeared to be recovering, after having assisted the nurse to white-wash and clean the ward, was sitting in the evening at tea with her and several other patients. She took the opportunity of the nurse going to a cupboard for some sugar, to seize a knife with which the nurse had just cut some bread, and in the presence of the whole party, in an instant, before her hand could be arrested, cut her throat in so dreadful a manner that she died almost immediately."—P. 125.

Sir W. Ellis, after noticing the changes in the passions and propensities, which take place in this disease, and stating that it does not create any passion or propensity which did not exist before, thus adverts to the supposed cunning of madmen.

"It is, I am aware, a very common opinion, that persons, in consequence of their becoming insane, acquire a new set of faculties, and especially that they become endowed with a great share of cunning. This is quite an error. There is no doubt but that this faculty may be often found very powerfully and actively developed amongst them; but where this is the case, it must have existed in the character previously to the disease coming on. A great number of the patients in public asylums, so far from being particularly cunning, possess no fraudulent dexterity of any kind."—Pp. 126–127.

For the author's remarks on the other morbid manifestations of mind in insanity, and the painful symptoms by which they are accompanied, we refer our readers to the work, while we conclude our notice of this chapter, with the following extract respecting the fœtor said to be symptomatic of insanity.

"A cold clammy perspiration, accompanied with a peculiar fœtor, often referred to by writers on this subject, is certainly found in many patients. It gives the skin an appearance of having been rubbed over by some greasy substance; it varies very much in the same patient; and is most perceptible when the individual is labouring under a severe paroxysm. It is, however, by no means an universal accompaniment of mental derangement. A great number of patients, both of those who have recovered and those who have died, have never exhibited it; but where it is found, it invariably denotes the existence of organic disease in the brain. I do not recollect a single instance of a patient with this symptom having recovered; and on dissection, the ventricles have uniformly been filled with a great excess of water. The unpleasantness of this fœtor may be very much obviated by the constant use of the tepid bath."—Pp. 133–134.

We pass over the fifth chapter, containing some remarks on Idiocy and Fatuity, and proceed to the sixth, which is devoted to the Treatment of Insanity.

The treatment is divided by the author into that applicable to cases in which diseased action only is going on in the brain, and into that which must be pursued in respect to those in which this diseased action has produced organic lesion. The former he denominates incipient, the latter chronic insanity. A perfect cure or much relief can be hoped for only when the disease is in its incipient stage, for if lesion of the brain have once taken place, "however the consequences of it may be palliated, and the patient rendered moderately comfortable, the mental manifestations can never be completely restored."

Though Sir W. Ellis holds that accelerated circulation of blood in the brain attends the commencement of all cases of insanity, except those which arise from loss of blood, want of nutrition and other debilitating causes,* he does not trust to medical treatment alone.

"Although bleeding and other treatment may for a time prevent an excessive volume of blood being sent through the brain, yet if the cause remains, and a part of the brain continues to be excited to undue exercise, or to be irritated by sympathy, it will demand and receive more than its due and healthy share of blood from the system. Mischievous and fatal results constantly arise in practice from want of attention to the cause of this increased circulation, particularly in cases of mania. Very copious evacuations and profuse bleedings from the system are resorted to, and after the animal strength of the patient is exhausted, he becomes quiet, but the mental delusion still remains. Supposing the cause of the disease to be a permanent one, such as any moral cause, the brain or a portion of it, continues to be unduly exercised, and to obtain from the system more than its due share of the blood, which the lancet has left. But when the loss of blood has been excessive, the vital power in numerous instances, is never recovered, and the patient either dies or sinks into a state of fatuity. Unfortunately many of the patients received into public hospitals, as recent cases have previously undergone this exhausting process. The constitution has not energy to rally, and there is, in consequence of this injudicious treatment, a much greater mortality amongst the recent cases than amongst the old, in proportion to their numbers and ages. In fact, if the cause be permanent, there is a greater probability of ultimate cure, when nature is left to herself, and the violence of the attack allowed to be expended, without any attempt at relief, than when her powers have been wasted by *excessive* depletions."—Pp. 149–150.

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* We do not think that Sir W. Ellis is justified in making this exception; for although there may be a deficiency of blood in other parts of the body, there can be no excitement of the brain, without the whole or a part of it receiving more than its usual supply within a given time.

On all occasions, therefore, the cause of insanity must first be ascertained, and the treatment modified accordingly.

In considering the treatment of incipient insanity, the author directs his attention, 1*st*, to cases in which the disease is attended with excessive circulation of blood in the brain; 2*d*, to cases in which the brain is primarily affected by the action of some moral cause; and 3*d*, to those in which the insanity is caused by the brain sympathizing with some other disordered organ.

In those cases in which the cause of the disease is a blow on the head, depletion may be carried to a much greater extent than when it results from moral causes.

> "Copious bleeding from the temporal artery, free purging with calomel and extract of colocynth, and cold applications to the shaved head, are the means most to be depended upon; the patient taking at the same time nitrate of potash in ten grain doses, with small nauseating doses of tartar emetic; the extremities being kept warm with bottles of hot water, or even stimulated with mustard poultices. The apartments should be kept well ventilated, but all noise and light should be carefully excluded. After such a quantity of blood has been drawn from the system as the constitution is thought capable of bearing, if the inflammatory action still continues violent, local bleeding may follow either by leeches or cupping, as may be convenient, and digitalis given with the nitrate of potash." —Pp. 156, 157.

Sir William Ellis inculcates great caution in the use of digitalis, and recommends that the dose at the commencement should not exceed five or ten drops three times a-day. The dose may be increased according to circumstances, it being always borne in mind that debilitating effects take place very suddenly, and that the most extraordinary prostration of strength often occurs, from which no stimulant seems sufficient to rouse the patient.

If the plan of treatment now detailed be had recourse to at an early period, a rapid recovery may take place, and there will be no occasion to remove the patient from home. When the stomach is weakened by the means necessary to subdue the inflammatory action, bitters, stimulating tonics, and exercise in the open air must be had recourse to.

When the disease resists the remedies mentioned above, the treatment must be the same as in cases arising from moral causes.

Insanity from *coup-de-soleil* is not so common in this country, as phrenitis and death. The brain, however, may be affected by long exposure to heat and the rays of the sun, though not so suddenly. In such cases, the treatment already indicated must be immediately enforced, because diseased action in the brain, arising from this cause, proceeds much more rapidly than from most other cases. Sir William Ellis disapproves of the application of blisters to the head, especially during the paroxysms, as they appear to create irritation rather than subdue it, and prevent the use of ice or cold water, which has frequently the most salutary effect.

In instances in which the disease has been produced by continued intoxication, the same treatment may be pursued. Sudden depletion to a very considerable extent may have a salutary effect.

Most of the cases arising from the causes mentioned above are attended with mania and considerable violence. Whenever the patient begins to be ungovernable, the author recommends as the kindest and least distressing mode of proceeding, even to the patient himself, to procure such an overwhelming power to restrain him, as to make him feel it useless to resist. Very few patients will contend with three or four firm individuals, though, if only one or two be present, the most determined resistance is made. But though it may be necessary to assemble such a force, that the appearance may overawe all opposition, it is neither desirable nor necessary that all the individuals should be employed, their mere presence being generally sufficient to subdue all violent resistance. For the means of confining the patient recommended by the author, we refer the reader to his work. In our opinion it is simple, easy to the patient, and perfectly effectual.

Cases of insanity arising from any physical cause, not producing organic disease of the brain or nervous system, vary in their duration from one to six months, according as the disease has been properly treated or neglected at the commencement.

The treatment of cases arising from moral causes, resolves itself into the medical and the moral.

> " In *all* cases of insanity arising from moral causes, on the commencement of the diseased action in the brain, more or less disorder will be found to exist in some of the other bodily functions. After the diseased action in the brain has continued for some time and become chronic, the other functions, in many cases, gradually recover their tone; and when lesion of the brain has taken place, the patients frequently enjoy a fair state of health. But until the system has become habituated to the diseased action of the brain, some other part of the body, varying, according to the different idiosyncrasies of the individual will be affected by sympathy, ** and it becomes ne-

cessary to adopt the proper medical means to restore them to right action."—P. 167.

Though the increased circulation in the brain must be diminished, Sir W. Ellis disapproves of effecting this object by large bleedings and copious evacuations. He recommends the head to be shaved, and the parts of the scalp, " under which it is probable the excess of circulation is taking place," to be repeatedly leeched or cupped, a small quantity of blood only being abstracted each time. In many cases, the parts from which blood should be abstracted, so as to produce the greatest local benefit, with the least expense to the constitution, will be discovered by the presence of additional heat or pain. When, however, the temperature of the scalp is equable, and the patient refuses to give any information as to his feelings, Sir W. Ellis conceives that the only mode of ascertaining the part of the brain which is disordered, is to note " the mode in which the altered conduct or sentiment exhibits itself. Blood is then to be abstracted from the region indicated by phrenologists, as containing the organs supposed to be diseased." From this plan he has seen great benefit. The following passage, however, will show that he does not assert that leeching or cupping other parts of the head might not have been equally advantageous.

In these cases, " I am unable to say, that the application to other parts of the head would not be attended with similar results; as I should not think myself justified, for the purpose of any philosophical experiment, in neglecting the means which I really believe to be the best calculated, to diminish the sufferings of the poorest or most imbecile patient under my care."—Pp. 170, 171.

The scalp having been shaved, and blood abstracted locally, the head is to be kept cool by ice or other cooling applications. The lower extremities are to be kept warm, and if other means be inefficient, mustard poultices may be applied with advantage to the feet, especially when the whole surface of the head is excessively hot.

" Watchfulness forms so prominent a feature in almost all recent cases caused by direct action on the brain, that it is necessary to dwell rather more at large upon it. To allay irritation is evidently the great desideratum; but as it is well known that there are peculiar idiosyncrasies in almost every constitution, so it will be evident that the means must be varied as we find them to exist. The same medicine which will allay it in one will not in another; but, on the contrary, increase it. This is particularly the case with opium, which is rarely found admissible in insanity. It more frequently creates heat, and general febrile action, than procures sleep; if given at all it should be in conjunction with ipecacuanha; from five to ten grains of which, taken at bed-time, is sometimes found useful—most probably from the action usually produced on the skin by this remedy. We find the application of cold to the shaved head to be the most effectual means, in the first stage of the disease, to procure sleep; and, afterwards, useful exercise out of doors. I have repeatedly seen patients who had been in the most violent state of excitement, and entirely without sleep for many days and nights, notwithstanding every effort has been used to procure it by the administering various narcotics, and the use of hop pillows, sink into the most comfortable repose on using the pediluvium, and applying cold to the shaven head. I have sometimes thought, that the placing a patient on a bed, kept gently rocked by a person not in the room with him, might have a tendency to produce sleep. This might be easily contrived, but I have not tried its effect. In the first stage of the disease we ought, if possible, to avoid the use of narcotic medicines; and to endeavour to procure sleep by allaying irritation, in the method above pointed out. I wish particularly to press this, because much has been said by some authors, on the necessity of procuring sleep by any means; and of keeping up the strength of the constitution with hearty suppers, porter and other stimulants. There is no doubt that a full meal very often produces sleep; and, that in the more chronic stage of the disease the exhaustion is often very great, and the constitution consequently requires an extra quantity of food. If the patient, under these circumstances, goes to bed with a stomach nearly empty, he will get no sleep; but hearty suppers are not admissible in the incipient stage. The diet should be low if the patient can bear it; but certainly in this stage never stimulating. It may in general be confined to gruel, milk, and pudding. Balm tea is the most refreshing diluent the patient can take to allay the thirst, which is usually suffered on the commencement of the attack.*** As the violence of the disease abates, a more generous diet may be adopted"—Pp. 172–174.

When the application of cold or exercise does not induce sleep, the author recommends five grains of the extract of hyoscyamus, fifteen or twenty drops of the tincture of digitalis, or a draught composed of the camphor mixture, solution of the acetate of ammonia, tincture of digitalis, and tincture of hyoscyamus, &c. to be exhibited at bed-time. No remedy, however, is so generally efficacious in allaying irritation as the warm bath. It may be used two or three times a week or oftener if necessary, and its good effects may be materially increased by applying cold to the head when the patient is in it.

While this plan is pursued for the purpose of diminishing the diseased action of the brain, the other functions of the body must, if possible, be restored to their natural state.

" When, from the furred state of the tongue and other symptoms, there is reason to conclude that the stomach is foul, I find that the quickest mode of giving relief is by giving an emetic; for, notwithstanding the use of them would appear contraindicated, from the act of vomiting propelling the blood to the head, I find this temporary inconvenience more than counterbalanced by the removal from that viscus of any irritating matter which, during its continuance, constantly tends to keep up the disease. And if, instead of emptying the stomach of the irritating matter at once by an emetic, we attempt to attain the same result by the slower method of purgatives and alteratives, we necessarily lose time."—P. 175.

Sir W. Ellis concludes this part of the treatment with some very judicious remarks on the administration of medicines, which, from want of space, we are obliged to omit.

In the moral treatment the first object to be attained is, if possible, to remove the cause. In some cases this is easily effected, as when the disease owes its origin to the presence of some objects which operate too powerfully on the brain. In such instances, change of scene, conjoined with proper medical treatment, will speedily cure the patient. When the disease, however, has been brought on by thinking too long and too intensely on painful truths, from which the individual cannot escape, it is exceedingly difficult to prevent the mind from dwelling upon them; for although the patient may be well aware that this is both injurious and useless, he does not appear to possess the power of controlling his thoughts. When the exciting cause cannot be removed, every object calculated to recall painful circumstances to the mind should be avoided, and the patient placed in a situation likely to produce a complete interruption of the train of thought. However painful, he must be withdrawn from the society of his friends, and if the diseased action be trifling and the attack quite recent, he should be sent on an excursion into a fine country, mountainous if possible, accompanied by an experienced medical attendant, for the purpose of seeing that the physical remedies necessary for the relief of the brain be not neglected.

The disappointment which frequently arises from change of scene producing no benefit may be traced to the neglect of the proper medical remedies. Much mischief has been produced from this mistake, and valuable time has been lost to the irreparable injury of the patient.

When the disease has made such progress as to render it no longer advisable to have recourse to travelling, the patient should be at once removed from home, and placed under the care of a medical man, whose first object should be to gain his confidence. As long as any symptoms of excessive circulation in the brain continue, he ought not to be allowed to take much exercise. When these, however, are removed, the ingenuity of the medical man must be taxed to engage him in some occupation which will divert his mind from the morbid train of thought. In this part of the volume, Sir W. Ellis gives a number of cautions and directions, which will be found of great practical utility, and takes occasion to state his views respecting the construction and management of asylums for individuals in the better ranks of society. These, we believe, have in reality less chance of recovery than their pauper fellow sufferers, who may be consigned to the care of men so benevolent and judicious as the author; for Sir W. Ellis also points out many of the errors which at present exist on the management of public asylums, and the means of rectifying them. This portion of the work, as well as the chapter on asylums, we think worthy of the attentive consideration of all who may be entrusted with the superintendence or direction of similar institutions. In the following passage he particularly insists upon the advantages to be derived from the assistance of women.

"I am far from decrying the benefits to be derived from the exertions of my own sex, but I know from experience, that these are nothing in comparison to the moral advantages to be gained by the benevolence and activity of woman. And it would be unjust in me if I did not acknowledge, that if I have met with any measure of success in my attempts to rouse the dormant faculties, to alleviate the sufferings of the insane, and to render the patients under my care a happy and a united family, this success is mainly to be attributed to the abilities, the courage, the perseverance, the kindness, and the engaging manners of my wife."—P. 215.

That this panegyric on Lady Ellis is no mere ebullition of conjugal affection the following extracts amply demonstrate.

"A female, of great firmness, had for several days refused to take her food, and as no persuasion seemed to have any influence upon her, preparations were made to inject it by the stomach pump. At this juncture my wife discovered that the woman had naturally a great love of acquiring. She sat down by the patient's bedside, and without saying anything on the subject of food, conversed with her on her former habits; and having learnt that she had kept cows and poultry, she induced her to give an account of the profits she made by them. This attracted the attention of the woman: she forgot her determination to resist; and whilst talking of the gain of selling the butter, she permitted herself to be fed with a basin of bread and milk, apparently unconscious that she was submitting to the wishes of her attendants.

"Another instance of the power of checking the violent operation of one set of feelings by calling another into action, also occurred to my wife. A patient who was pruning some trees in the garden, quarrelled with another lunatic, during the accidental absence of the gardener: he became so irritated that he threatened to kill the other. A third patient ran into the house to give the alarm. He met my wife on the way, and she returned with him to the combatants, and desiring to speak with the man who had the knife, told him she was surprised to find a man, of his talents and understanding, so far forgetting himself as to dispute with the other, who, as he knew, had been insane for several years. This gratified his self-esteem. He said, you are right, ma'am; I shall take no farther notice of him;—and he at once became quiet. It not unfrequently happens, that patients of very irritable tempers are suddenly thrown into violent paroxysms of passion from slight causes, and are as often to be diverted out of them, by calling other faculties into operation, by very simple methods."—Pp. 220, 221.

"H. R. a female about forty years of age, had been insane for some years when admitted. She was a robust woman, and being generally in a state of excitement, was the terror of all the patients in the ward, when not in confinement. If at any time a softened influence could be produced upon her, and more gentle feelings called forth, it was by referring to the scenes of early life. One day, when under these impressions, a patient began a song, which she had learnt when a girl, when turning to my wife, who stood near her, she said with a great animation, 'Mistress, when I was young I knew that song, and I think I could sing it now.' She began, and, with the greatest delight, found she remembered the whole of it. From that hour 'a change came o'er the spirit of her dream:' her excessive violence gave place to the more amiable and kindly feelings. Instead of being the dread of all about her, she became obliging and industrious. After some months of trial she got well and returned home. Some years afterwards she came over to pay us a visit, and at that period had had no return of the disease. The advantage of presence of mind, and apparent confidence in the patients, when from circumstances placed in their power, during a paroxysm, was strikingly exemplified, in the conduct of my wife towards this patient. In one of her most furious ebullitions of passion, she contrived to seize her, and to twist her hand in her hair at the back of her head, and she looked at her with a countenance expressive of the utmost rage, and told her that she could 'twist her head round;' which, from her great strength, was almost literally the truth, when my wife answered with great calmness, 'yes, you could; but I know you would not hurt a single hair.' This confident appeal pacified her, and she immediately quitted her hold." Pp. 223, 224.

Sir W. Ellis points out and illustrates, by various cases, the good effects of kindness and firmness in the management of the insane. The restrictions under which visits from friends should be permitted, and the mode in which, in suitable cases, moral and religious instruction ought to be conveyed to the insane, are also discussed by the author with his usual judgment, and this part of the work, devoted to the consideration of the treatment of incipient insanity, is concluded with some general directions for the medical and moral management of insanity, produced by the brain sympathizing with other organs in a state of disease.

In chronic insanity, that is, when the brain or its membranes have become permanently injured, its functions, as has been already remarked, can never be perfectly performed. In some cases the lesion is so trifling, and the derangement confined to matters so unimportant, that the individual may be capable of managing his affairs; and unless something shall occur to excite the diseased part to excessive action, no symptom of insanity may be exhibited for considerable intervals. A great liability to paroxysms, however, exists, and each succeeding attack leaves the patient in a worse condition. In some cases these are periodical; in others the intervals of convalescence vary, and seem to depend on the absence of any cause of excitement. In many instances, where the patients exhibit decided marks of derangement, they are liable to similar exacerbations, produced by very trifling causes.

The symptoms of the attack in chronic cases are very similar to those which characterize incipient insanity.

> "The head becomes hot, the secretions are disordered, the patient is irritable, and there is an alteration for the worse in his general manner and conduct. As soon as any of these symptoms are observed, the system previously pointed out as proper to be adopted on the commencement of insanity should be at once pursued, but with a still greater caution in the use of depleting remedies. By carefully watching the first appearance of these symptoms, and at once keeping the patient perfectly quiet, and applying the small local bleedings, and other medical remedies, the attack which, if the patient were not properly attended to, would last for many weeks, may be frequently stopped in the course of a few days, and with comparatively but little increased diseased organization of the brain. I can speak with some degree of confidence as to the effect of local bleedings in chronic cases. Many patients have been under my care, who afford an opportunity of forming a correct estimate of its effects. * * * In the intervals of the attacks, employment, according to the various capacities of the patients, combined with firm and kind moral treatment, on the plan previously mentioned, is the best means of increasing their general health, of contributing to their comfort, and of prolonging the period of their convalescence."—Pp. 250, 51.

The chapter is concluded with some remarks on the medical education of those to whose care the insane are to be intrusted.

The remaining chapters are devoted to the diseases of the insane,—the construction and management of asylums,—and the distinction between conduct resulting from moral evil and that arising from insanity; and the volume is concluded with an appendix, containing some remarks on masturbation as a cause of insanity, the diet-table of Hanwell Asylum, and the rules and regulations for the keepers and servants. We particularly recommend the chapter on asylums, and that on the distinction between immorality and insanity, to the attention of our readers. To have noticed them in a satisfactory manner, would have been to transcribe almost every line.

We cannot conclude this article without bestowing the highest praise on Sir W. C. Ellis, not only for the amount of useful information contained in his work, but for the enlightened moral, and religious tone of feeling which pervades it. We have no hesitation in recommending it to the attentive perusal not only of all classes of the profession, but of those who may be officially connected with the asylums of the country.

Art. V.—*On Diseases of the Rectum.* By James Syme, F. R. S. E., Professor of Clinical Surgery in the University of Edinburgh. Edinburgh, 1838. 8vo. Pp. 138.

The frequent occurrence of diseases of the rectum, their importance, both as indications of the state of the general health and as reagents on it, and the difficulty of treating them properly, are sufficiently evinced by the number of publications which have been, during some years past, devoted to the elucidation of their nature, and the most prompt and appropriate means of relieving the sufferings and inconvenience occasioned by their presence. It is only, however, of late, that practitioners have become aware of their frequency, and that, consequently, much attention has been bestowed on their nature and origin; and even on both these subjects, and also on the best methods of treatment, we find that professional opinion is by no means unanimous, and that much is requisite to be done in order to establish, in each case, an efficient and appropriate system of therapeutic management.

Previous to the time at which the short treatises of Mr Thomas Copeland, (1810)* and Mr W. White, (1812)† appeared, no special attention had been devoted to the morbid states of this bowel; and surgical practitioners were obliged to trust almost entirely to the descriptions and therapeutic directions given in systematic treatises, in which they were always vague and unsatisfactory, and sometimes erroneous. The best account of this kind is that given in the 15th chapter of the last volume of the Surgical Institutions of Monteggia, the late learned professor of surgery at Milan; and excellent as it is, it has only to be perused to show how unfit it is to guide the surgeon in his principles and practice;—independent of the circumstance, that it does not come nearer the present time than the year 1815. The treatises of Mr Copeland and Mr White, therefore, were of great use in directing the attention of surgeons to the subject of diseases of the rectum, which had certainly been too much overlooked; and the latter author especially has, in three successive editions and several supplemental papers, continued to add from time to time whatever information his increasing and enlarged experience could furnish.

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* Observations on some of the principal diseases of the Rectum and the Anus, particularly Stricture of the Rectum, the Hemorrhoidal Excrescence, and the Fistula in Ano. By Thomas Copeland, Surgeon. London, 1810. 8vo.

† Observations on the contracted Intestinum Rectum, and the mode of treatment, accompanied with cases illustrative of the different morbid appearances attendant on the complaint. By W. White, M. R. C. S. &c. Bath, 1812. 3d. edit. Bath, 1820, and Farther Observations, London, 1822.

The works now mentioned were followed at different intervals by those of Kirby (1817–1825,) Calvert (1824,) Salmon (1828, 1831,) Mayo (1833,) and Bushe (1837,) of all of which accounts have been given in the pages of this Journal;—besides several isolated papers, and not a few essays, which have appeared in France and Germany. The last mentioned English, or rather Anglo-American, treatise, which came under observation was probably the most full and comprehensive; and we then recommended it, as giving, from various sources, much valuable information, on the nature of the diseases and injuries incident to the rectum, and the methods best calculated to afford relief and recovery. We had occasion, however, to observe even in this excellent work, what we conceive is more or less a defect in all the treatises that have been published on the subject. The rectum and its morbid states are considered in a manner a great deal too isolated, and, as if that bowel scarcely formed a part of the alimentary canal, and was, neither in its physiological nor its pathological relations, influenced by the state of the digestive tube or that of the general health, and did not in its turn produce a very great and remarkable influence upon them. If there be any one point clearly established in physiological pathology, it is, that many if not all of the diseases of the rectum originate more or less in an unsound state of the alimentary canal in general, and that, both in preventing and in curing them, it is of the utmost importance for the surgeon to be aware of this connection, and to be guided by it in his therapeutic methods.

The present treatise, though small, is distinguished by two circumstances which strongly recommend it to the surgical practitioner. In giving short and clear accounts of several of the most important diseases incident to the rectum, Mr Syme impresses very strongly the nature of the connection now specified, and the necessity of attending to it, and considers the diseases of the rectum not as a mere operating surgeon, but as a good physiologist and pathologist. But besides this, he accommodates the proper mode of treatment to each form and variety of disease of the rectum, with greater precision and accuracy than we think is done in any other work. His therapeutic precepts evince throughout both extensive experience in the observation of diseases of this order, and that his opportunities have not been neglected.

The whole treatise consists of six chapters, in which the author considers successively the different subjects of *Fistula in Ano*, Hemorrhoids, *Prolapsus Ani*, Polypus of the Rectum, Stricture of the Rectum, and Spasmodic Stricture of the Rectum.

In the first chapter, devoted to the subject of *Fistula*, the author gives a succinct and clear account of the mode in which this disease is formed, of the effects which it produces, and of the treatment required for its removal.

He impresses the fact, that there may be two varieties of the disease, or at least that the disease, though always connected with the state of the alimentary canal and general health, may either take place in necessary connection with this derangement, or may exist as a mere local malady. To the latter chiefly he confines the operative method, which has been usually employed for the final eradication of the disorder.

It is well known, that, trifling as this disease appears to be, and indeed its importance has been rather under-rated, much doubt is entertained by the most eminent masters in the profession, both as to the original source of the disease and its extent;—some, like M. Ribes, maintaining that the disease commences from within the bowel, and that the *fistula* is always complete; others representing it, as Mr Pott and the present author, to originate in the adipose tissue round the bowel, and either to penetrate the mucous coat of the rectum or not. Mr Syme agreeing with M. Ribes, that the internal opening is a much more frequent occurrence than is usually imagined, adds that many complete *fistulae* have been mistaken for blind *fistulae*, or sinuses simply, merely from the circumstance that the opening into the bowel was very difficult to be found. Another important point in the pathology of *fistula* established by Mr Syme is, that in that order of cases in which no opening in the bowel had taken place, the villous membrane, at the point at which it must have taken place, that is to say, the villous membrane corresponding to the inner extremity of the fistula, is not only denuded, but rendered so thin, that the perception of the probe behind it is hardly less distinct than if the instrument had entered the rectum; and he accordingly establishes the therapeutic rule, that, to render the cure certain, the incision must be extended to this point.

The principles inculcated by Mr Syme in regard to the extent of this disease, and the kind of operation, are contained in the following passages.

"1. In complete fistula, the internal opening does not lie farther from the anus than an inch and a quarter, and is frequently much nearer to it.

"2. In external fistula not communicating with the gut, the mucous membrane is denuded and attenuated at the part where the opening would be if there were one.

"3. In performing the operation it is merely necessary to divide the parts lying between the external and internal apertures, or denuded part of the mucous coat corresponding to the latter.

"4. In the after-treatment it is not necessary to interpose any dressing between the edges of the wound beyond the first forty-eight hours."—Pp. 29, 30.

Every one conversant with surgical practice knows that there are few cases of *fistula*, for the cure of which more than one operation has not been performed; and there is every reason to believe, that these repeated operations have been rendered requisite, in consequence of the extent and duration of the disease not having been duly considered at first. If the directions of Mr Syme be borne in mind, and the rules established in the present essay be carefully observed, we think the practitioner will incur little hazard of having to repeat his operation.

Besides the ordinary form of *Fistula in ano* originating from inflammation of the adipose tissue round the anus and rectum, there are observed other forms of the disorder, which, however similar in effect, differ widely in origin, and consequently require some modification in treatment.

In the *first* place, the bones of fish or small birds, or any foreign bodies, may, when arrived at the rectum, wound its coats, and thus induce a fistulous opening, and one or more sinuous canals, which will resist all attempts at healing, till the foreign body or bodies be extracted. In this case Mr Syme justly recommends that the *fistula* should be thoroughly laid open in the ordinary mode, and then, if requisite, that incisions should be made sufficiently extensive to allow the foreign body or bodies to be extracted without violence or tearing the surrounding parts.

In the *second* place, *fistula in ano* may be connected with, and occasioned by, the presence of stricture, which may excite irritation, and thereafter suppurative ulceration. Though in this case the same operation is requisite as when the fistula is unconnected with stricture of the bowel, the ultimate recovery of the patient will depend upon the practicability of restoring the rectum to its natural capacity and texture.

In the *third* place, disease of the hip-joint may give rise to secondary suppuration of the incumbent textures, and at the verge of the anus, or in the lower part of the hip, where a sinuous canal imitates closely the appearance of blind *fistula in ano*. When the sacrum also, or the ischium, becomes diseased and carious, and dead portions are to be detached, they give rise to similar sinuous canals, which in like manner imitate the appearance of *fistula.*

In each of these cases the necessity of careful examination, in order to form a correct diagnosis, is too obvious to require to be more forcibly impressed. Mr Syme mentions two cases in which these appearances took place, and gave rise to sinuous openings which lasted long, and resisted all means of cure, until portions of dead bone were extracted, when both patients speedily recovered.

In the second chapter, devoted to the subject of hemorrhoids, Mr Syme distinguishes that disorder into three varieties; 1*st*, the venous, consisting chiefly of varicose and dilated veins, which are liable to inflammation and ulceration; 2*d*, the external hemorrhoids, which seem to consist in hypertrophy of the thin delicate skin at the verge of the anus, liable also to inflammation, suppuration, and even occasionally mortification; and 3*d*, the internal hemorrhoids, which is a peculiar morbid state of the mucous tissue of the rectum, immediately beyond the cutaneo-mucous membrane, which is the seat of the external hemorrhoids.

The last is decidedly the most important disease; and is described by Mr Syme in the following terms:

> "They possess an irregularly round form, a florid colour, a granular uneven surface, and very vascular structure, so as to bleed freely from the slightest injury. They resemble a strawberry very much in appearance, and seldom existing singly, in general constitute a more or less complete annular swelling, which, when protruded beyond the anus, seems to close the aperture of the gut completely, and is surrounded by an external ring proceeding from distension of the neighbouring loose texture, which is the seat of external hemorrhoids. The two kinds of growth are easily distinguished, not only from their difference of position, the one being seated within the other, but also by their difference of surface, the one being smooth and the other granular."—Pp. 58–59.

Its leading character is the excessive disposition to bleed, which the mucous membrane of the rectum so diseased betrays; a circumstance which has led some to consider it as a variety of the erectile tissue, which constitutes *naevus* and aneurism by anastomosis. This similitude, however, Mr Syme observes, is by no means generally applicable, as the latter diseases are with few exceptions congenital in origin, whereas internal hemorrhoids rarely make their appearance before the age of maturity.

> "Like other hemorrhoidal affections it occurs chiefly in the vigour of life. It is much more common in males than females, and in both sexes greatly more frequent in the higher than the lower ranks of society. Residence in warm climates, a luxurious diet, deficient exercise, and excitement of the generative organs, are the circumstances which seem to have the most powerful influence in determining its commencement, and encouraging its progress, espe-

cially when several of them operate together. Literary pursuits and a professional life, which admits or requires sedentary habits, are observed to favour the production of this morbid excrescence. It would seem, in short, that the superfluous nourishment usually acquired by persons in easy circumstances, when not expended in bodily exertion, is apt to find vent through the channel of internal hemorrhoids, into which it may be directed by the opposition afforded by a sitting posture to the free return of the blood circulating in the pelvic viscera."—Pp. 60–61.

Mr Syme gives an accurate history of the symptoms and effects resulting from the presence of this diseased state of the rectum, under the three heads of painful sensations, protrusion of the tumour, and hemorrhage. The painful sensations are referred either to the seat of the disease itself, or to the urinary organs; and in the latter, the sufferings are occasionally so intense, as to obscure the original seat of the disorder, and make all the symptoms be ascribed to some disease of the bladder, prostate gland, or urethra.

The most serious and formidable effects of this disease, however, are the repeated hemorrhages to which it gives birth, and which may, by continuance and constant recurrence, be so profuse, as to make most alarming inroads on the patient's health and strength, and give him the appearance, with not a few of the symptoms, of a person gradually declining under disease of the heart. Thus not only does the countenance become pale and wan, the lips white and waxy, and the whole surface of the body acquire a peculiar dingy yellow hue, but the patient becomes feeble and languid in body, listless in mind, and fretful in temper; his sleep is disturbed, he has quick feeble irritable pulse and headach, increased by the erect position, and palpitation and pain in the region of the heart, with difficult breathing, all which are aggravated by bodily exertion or mental agitation.

All practitioners who have carefully observed patients labouring under this incessant drain will bear testimony to the fidelity of this description, and will see the propriety of at once inquiring into the state of the rectum, and if, upon examination, the membrane prove to be diseased in the manner above described, and repeatedly effusing blood, of adopting without delay the means of restraining the hemorrhage.

With regard to the treatment to be pursued, Mr Syme has the merit of adapting the treatment with much precision to the different forms of hemorrhoidal disease.

In the management of venous hemorrhoids, he dissuades from operation either by ligature or puncture, which is contraindicated by the tendency of venous tissue to be affected with inflammation. Soothing measures, as rest in the horizontal posture, the hip-bath, gentle laxatives, injections of tepid water into the rectum, and when there is much pain, local depletion by means of leeches applied round the anus, are the chief measures admissible.

The external hemorrhoids he recommends to be removed by means of the curved scissors, whenever the parts are free from pain, heat, and other marks of inflammation.

In the case of internal hemorrhoids, Mr Syme applies ligatures round the individual vascular bleeding tumours, by carrying through the roots of each a needle with a double ligature, and tying each half of the tumour by the separate ligature as tightly as possible. The immediate effects of this operation he represents to vary according to the constitution of the patient, and the extent of the disease. In irritable habits it is followed by pain, want of sleep, and sometimes slight delirium; and not uncommonly the bowels are confined, and the urine is retained. For these symptoms he recommends an opiate, or an opiate injection into the rectum, fomentations, the hip-bath, the internal use of sweet spirits of nitre, and eduction of the urine by the catheter, with adherence to the antiphlogistic regimen.

In establishing the foregoing rules, and adapting them to the different varieties of hemorrhoidal tumours, Mr Syme has accomplished all that the present state of surgical knowledge admits. All the surgical treatises to the present time show how unsettled is the method of treatment, and how opposite are the directions given. It was well known to surgeons, from the cases recorded by M. J. L. Petit, to whom we owe an instructive section on the subject of hemorrhoids,[*] that the application of the ligature was occasionally followed by symptoms of acute and violent intestinal or peritoneal inflammation, which subsided on the removal of the ligature, and in some cases terminated fatally; and, as these results were confirmed by the occasional attempts afterwards made to employ the ligature, surgeons have very generally been averse to its use, and have been disposed to adopt the method by excision. This, however, was also not free from inconveniences, and consequently objections; and one of the most serious is that of profuse hemorrhage, which is either not checked, or not thought of, till the whole colon becomes distended with blood, and either the patient is so enfeebled as not to recover, or he perishes from absolute hemorrhage. Thus Sir Astley Cooper records the case of a Scottish nobleman who died in this manner; and other instances of the same inauspicious termination must undoubtedly have succeeded the employment of the knife in this situation.

It was chiefly the knowledge of similar inconveniences that led M. Mayor again to propose the use of the ligature, and to defend its employment by all the arguments suggested by this knowledge. But notwithstanding the arguments adduced by this advocate, the ligature has found little favour; and, as M. Velpeau observes, it is almost generally abandoned in attempting the removal of hemorrhoidal tumours. The practice of the late M. Dupuytren, and the work of Sir Charles Bell, show that the practice is still in an unsettled state.

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[*] Traité des Maladies Chirurgicales et des Operations qui leur conviennent, Œuvrage posthume de J. L. Petit, mis au jour par M. Lesne, &c. Tome ii. Paris, 1790. Chap. vi. des Ulceres, §. v. p. 70.

To us who view the question in reference to the textures affected, it appears that much, if not the whole, of this discordance is occasioned by the mistake of confounding the different forms of hemorrhoidal tumour under one head, and applying to all the same method indiscriminately. By distinguishing the different forms, therefore, according to the textures affected, Mr Syme has the merit of introducing a method which is likely to be more successful than any heretofore employed. There is, however, one point in which we fear it is possible to revive some of the evils of the ligature as formerly used. Sir Charles Bell very properly observes, in his recently published Elements, that after any severe operation on the rectum, the alarming circumstances are pain above the pubis, and towards the umbilicus; then fever and peritoneal inflammation, indicated by tenderness. And on this he afterwards adds, " In operations on the rectum, there is less pain on injuring the gut within, than at the margin; but the danger of peritoneal inflammation is greater, the deeper the injury."

This observation is perfectly well founded in two senses; not only as the injury is more remote from the outlet of the bowel, but as it affects more of the component tissues of the rectum. We cannot perceive that Mr Syme makes much distinction between applying the ligature merely to the mucous tissue of the rectum, or perhaps only to the morbid vascular developement of the mucous tunic, and to the muscular coat, and any part where it may be externally invested by *peritoneum*. But it has always appeared to us, that the formidable symptoms occasionally observed to ensue on the enclosure of a part of the rectum within a ligature, were to be ascribed either to the circumstance, of not only the whole thickness of the mucous coat, but that of the muscular and the peritoneal being also constricted and injured, or to that of some of the veins having been tied, and consequently having become inflamed. In making this observation, however, it is due to Mr Syme to say, that his method of introducing the needle through the root of the tumour, and tying on each side, is less likely to entail the inconvenience now specified, than the methods formerly in use, and by which it is manifest that considerable portions of the bowel, and perhaps of its veins, were included in the ligature.

Procidentia ani, *prolapsus ani*, or protrusion of the rectum, forms the subject of consideration in the third chapter. Mr Syme distinguishes, as is usually done, the prolapsus, which may be regarded as primary, or dependent upon the rectum itself, and that which is secondary, or dependent on other diseases, as severe diarrhœa, dysentery, stone in the bladder, ascarides, and other causes of irritation, general or local. The form chiefly requiring consideration by the surgeon, as becoming an object of surgical treatment, is that in which the whole thickness of the rectum is protruded, and forms more or less of an external tumour, round or oval, sometimes cylindrical, varying in size from that of a small egg to that of a large orange, presenting the slimy surface of a mucous membrane, and secreting more or less abundantly a matter like red currant jelly. In this form it is allied to intus-susception.

The therapeutic means, Mr Syme distinguishes into those for accomplishing replacement of the bowel, and those for preventing the protrusion.

"In order to attain the first of these objects, the patient should be laid horizontally on his side or back, with the limbs bent upon the pelvis, and desired not to hold his breath, which, by confining the abdominal viscera, opposes the ascent of the gut. The surgeon then grasps the tumour in his hand, having previously lubricated its surface with oil, and, gently but steadily compressing its neck, while at the same time he urges on the body of the swelling, gradually pushes the protruded parts within the sphincter."—Pp. 92, 93.

The great point, however, is to prevent the bowel from being again protruded; and too often this is a matter of no ordinary difficulty. After adverting to the means required in cases of symptomatic or secondary *prolapsus*, the author considers those required for the removal of that which depends on weakness, relaxation, or palsy of the *sphincter ani*. In the latter case little can be done beyond the use of the bandage. But it may happen, that a degree of contractile power is left, though diminished by the constant distension of the outlet, and impeded in its action by general relaxation of all the parts around the anus. In this case benefit sometimes results from the operation of removing a portion of the pendulous skin around the surface of the bowel, after which the subsequent inflammation gives the parts a degree of firmness which serves as a substitute for the natural resistance.

"The scissors curved to one side prove most convenient for effecting this excision, and should be directed from the circumference towards the centre of the aperture. The folds of skin should be held tense by a hook or forceps, and be removed from the distance of about an inch and a-half quite up to the mucous membrane, a small part of which should be included in the incision. It is not necessary to remove more than four or five of the folds."—P. 97.

There is another form of *prolapsus*, in which the internal or mucous membrane alone, always in a state of morbid thickening and alteration is protruded. Mr Syme properly remarks, that this belongs to the disease already considered under the name of external hemorrhoids. It is a *prolapsus* altogether secondary and symptomatic, and as such demands the treatment adequate to the removal of the primary disorder. It is not very pleasant to think how much confusion prevails both in the practice of surgery and medicine, from want of correct observation and accuracy in the diagnosis of disorders, with only similar external signs.

From the fourth chapter, on the subject of Polypus, we pass to the fifth, on Stricture of the Rectum. This Mr Syme distinguishes into two forms, simple stricture and malignant stricture.

In the former, the canal of the rectum is contracted, with thickening and induration of the tissue of the coats. This is the simple stricture, or rather the contracted *rectum* of Mr W. White of Bath, who ascribed the contraction partly to thickening of the mucous membrane, (Section iii.), partly to enlargement, or what is now called hypertrophy, of the muciparous follicles of the bowel, (Section ix.) According to Mr Syme it is seated very near the lower extremity of the rectum, a little within the sphincter, between two and three inches from the anus; and though he does not deny that contractions may occur in any part of the colon, yet he doubts whether these contractions are of such limited extent, as to constitute stricture in the proper sense of the word, and whether their presence or extent can be ascertained, or their removal effected by instruments. There is no doubt, that, as at one time stricture of the rectum, as a cause of uneasiness, constipation, and bad health, was often overlooked, so now a mere constipated state of the bowels, from torpor or hebetude of these organs, is often mistaken for it; and stricture of the rectum is believed to exist where it does not. On this delusion, we recommend the careful perusal of the observations of Mr Syme, who gives a most correct account of the true disease, as distinguished from mere constipation, on the one hand, and diarrhœa, one of its ultimate effects, on the other.

On the latter topic, we find Mr Syme attaches much importance to the peculiar diarrhœa, to which this disease gives rise after a certain time, and cautions the practitioner against confounding this symptom with that of primary diarrhœa, from inflammation of the intestinal mucous membrane.

"The mistake thus committed not only prevents the proper means of remedy from being employed, but leads to the administration of astringents and anodynes, which must prove hurtful, by checking the process instituted by the system for its own relief. This consists in the copious secretion of fluids into the cavity of the great intestine, which lessens the solidity of the feculent matters, and facilitates their passage through the narrow channel that remains for their escape. Being forced down upon the stricture by the violent efforts at expulsion which are made to unload the distended bowels, a small quantity is urged through the stricture, and issues from the anus in a sudden jet, as if propelled by a squirt. The grand character of the disease in its advanced stage, then, is the frequent squirting out of thin feculent matters, containing no solid masses, or only very small ones, and mixed with blood or mucus, accompanied by a sensation of cutting or burning in the rectum. In addition to this the abdomen is distended, partly by retention of its feculent contents, partly by tympanitic swelling, caused by derangement of the bowels. Pain also is felt in the sacrum, extending down the limbs; and abscesses frequently form in the vicinity, so as to lay the foundation of *fistula in ano*. In this case the sinus does not, as has been alleged, open into the gut above the contracted part, but holds its usual position near the anus, and should be regarded rather as an accidental consequence of the neighbouring irritation, than as a direct effect of the stricture."—Pp. 115, 117.

For the management of the disease, Mr Syme recommends trusting mostly to the regular and steady use of the bougie, either of iron, or of elastic gum.

On the subject of malignant stricture, or that which is the result of tubercular or scirrhous disease, attacking the mucous or glandular tissue of the rectum, Mr Syme makes some judicious observations, which ought to be indelibly impressed on the mind of every surgical practitioner, who wishes to practice his art with credit to himself and advantage to his patient. In deciding upon the mode of procedure in this case as in every similar one, all depends on the formation of a correct diagnosis. When a patient presents himself for advice with symptoms of contraction of the rectum, the first point to be ascertained is, whether the arctation of the canal be owing to mere thickening and contraction, or be dependent on the presence of tubercular or scirrhous deposit. In the former case, the contraction may be dilated by means of instruments. In the latter, instruments cannot be introduced without causing much injury, and accelerating the onward progress of the heterologous structure to disorganization. In forming his opinion, therefore, the practitioner must not only examine the rectum by the finger, inspect the motions and matters discharged, but he must attend closely to the general symptoms, and especially the feelings of the patient; and in making up his mind, he may derive material assistance from the description given in the present volume. In general, it is requisite to advert to the age of the patient, as it is commonly a disease which appears in the latter period of life; and it is hardly possible to overlook the colour of the complexion, which is of a leaden dingy tint, and the unhealthy ghastly appearance of the countenance.

When the practitioner has made up his mind, the next question is, what is he to do? and this Mr Syme properly answers, by recommending that nothing beyond palliation can be attempted.

He equally dissuades the practitioner from attempting the introduction of bougies, or having recourse to those means which are well known only to irritate the morbid structure, and undertaking any operation which cannot fail to add to the sufferings of the patient, without holding out the most distant prospect of alleviation and cure of the original disease. He does not deny the practicability of cutting away more or less of the lower end of the bowel, without immediately fatal or inconvenient consequences to the patient. But he properly observes, that this operation never can remove such a disease as carcinoma of the rectum; and the very circumstance of the patient making any recovery whatever, is a clear proof that, if such operation were beneficial, the disease for which it was performed, was neither scirrhus, nor tubercular cancer. No rational person or good surgeon can doubt that the principles here established are founded on the most solid and irrefragable grounds; nor do we think it will be easy to show, providing always that the diagnosis is accurately made, that extirpation of part of the rectum by the knife is not a gratuitous and inadmissible operation.

The only exception, justly made so by Mr Syme, is that of cancer affecting the verge of the anus, that is, the cutaneo-mucous tissue between the skin and the mucous membrane. This, however, is a case entirely different, and scarcely implicates the rectum properly so named.

On the subject of Spasmodic Stricture of the rectum, treated in the last chapter, our limits will not allow us to enter further than to give the following case.

"I was asked to see a gentleman about sixty years of age, who stated that, a few weeks before, after sitting out a long debate in the House of Commons, he had felt extreme difficulty in evacuating the bowels, having previously for several years experienced more or less uneasiness from this source; that he had consulted a physician and surgeon in London, who prescribed laxatives without affording relief; and that his complaint had continued so as at length to confine him to bed. I proposed an enema, which was at once objected to, on the ground that the anus would not admit the smallest sized tube. Suspicion being thus excited, the anus was examined, and found to present the characteristic features of spasmodic stricture. Having explained my views of the case, I gently insinuated the narrow sheath of a *bistoury caché*, which I happened to have with me, and then expanding the blade, withdrew it, so as to make an incision at one side of the orifice. A copious stool immediately followed, and the patient was at once completely relieved from his complaint."—Pp. 137, 138.

In conclusion, this work must be recommended to the surgical reader as one which contains, in a small compass, a good practical view of the most common diseases incident to the rectum, and the means best suited to accomplish their cure.

PART III.

MEDICAL INTELLIGENCE.

Contributions to distinguish the Causes, Nature, and Treatment of Club-foot. By W. J. Little, M. D. (*Symbolae ad Talipedem Varum cognoscendum.* Pars I. Genesis, Pars II. *Continens Anatomen Pathologicam, Semioticen, Rationem morbi tractandi, Exemplaque nonnulla methodo Stromeyeriana sanata,* Auctore W. J. Little, M. D., &c. Berolini, 1837.) This Dissertation deserves notice, because it contains a good account of one form of club-foot (*Talipes varus,*) and of a method of removing the deformity practised by several foreign surgeons, but especially by George Fred. Ludovic Stromeyer of Hanover.

The term club-foot has been long in common use, to designate a species of deformity in which the foot is at once more or less turned inwards or tibiad, so that the individual on walking supports himself partly on the outer or fibular surface, and partly on the *dorsum* of the foot, and at the same time the normal length of the foot is abridged, by the toes being more or less shrunk and incurvated towards the sole of the foot.

This deformity has received from some the denomination of *Talipes,* from the circumstance that Festus, the Roman grammarian and lexicographer, uses the verb *Talipedo, talipedare* to express the action of walking on the pasterns, πτερνοϐατειν, from *talus, astragalus,* the pastern bone, and *pes* the foot. The word *Talipes* has no existence in any classical author, and *Talipedare* bears the mark of unclassical distinction.

Three forms of deformed or distorted foot have been described by authors. 1. The first is the most common, or that in which the foot is introverted, the sole being turned inward and the fibular side and *dorsum* downwards, while the toes are drawn inwards towards the arch of the foot and the heel. This has been denominated *varus,* not with great accuracy, since that term is used by classical writers chiefly to denote a deformity of the legs; and, what is still more troublesome, the term is most generally and correctly used as a substantive, to denote the hard tubercles or chronic pustuliform eminences of the face and nose. It is introversion (*endostrophe.*) 2. The second, which is less frequent, is that in which the feet are extroverted, so that the inner or tibial ankle sinks on the ground or near it, while the sole of the foot is more or less turned outwards, and the fibular side inwards or towards the other foot. In this often both feet are extroverted. To this the name of *Valgus* has been applied with about the same degree of inaccuracy as in the last case, in so far as the term when used is evidently applied to a deformity of the legs, and it is further not quite determined, whether it is applied to that in which the legs are bandy, or that in which they are uneven externally, and the individual is knock-kneed. This is extroversion (*exostrophe.*) 3. The third form is that to which the name of *pes equinus,* or horse foot, has been long applied, because the patient walks without allowing the heel to touch the ground, and solely on the anterior part of the *metatarsus* and the toes. This may be called deorsoversion (*catastrophe.*)

Dr Little proposes to employ the term *Talipes* as a generic one, comprehending all the varieties of distortion of the foot, whether by introversion, (*endostrophe*); extro-version, (*exostrophe*); or deorso-version, (*catastrophe*); and to apply the terms *varus, valgus,* and *equinus,* as specific denominations of the individual forms of the distortion. In the present essay, though he considers the general productive causes of the whole, he confines himself chiefly to the detailed examination of the first form, the *Talipes varus.*

In this, as already stated, the individual in walking supports his person not by placing on the ground the sole of the foot, but the outer margin and external ankle. The tip of the foot is more or less turned inwards, and in some formidable cases to such an extent, that the inner margin of the foot forms an acute angle with the *tibia.* One or both feet may be the subject of this species of deformity. The leg and foot retain their proper shape, though they may be shorter and more slender than those with the sound foot. The leg is generally emaciated. In some cases the one knee is turned a little outwards or inwards, and when one foot is affected, the knee-pan is evidently smaller than that of the sound foot.

In general the internal or tibial ankle cannot be felt; but the external or fibular ankle projects and appears to yield backward. The heel is more or less retracted upwards by the strong action of the gastrocnemii, and appears to be incurvated inwards; but this is only in appearance. The inner margin of the foot and the sole are hollow; and in the latter is imprinted a furrow in the long and broad direction. The great toe is often very much stretched, especially if the patient endeavours to bend the foot. On that part of the external margin or *dorsum* of the foot, on which the patient supports himself in walking, are seen a *bursa mucosa* beneath the skin, or several corns, with which several processes of the tarsal bones are covered.

The symptoms now mentioned are what may be styled the essential and pathognomic; and of these all the others are either effects or symptomatic consequences.

The state of the bones and soft parts in this species of malformation, as disclosed by anatomy, has attracted the attention of Scarpa, Ioerg, Clossius, Colles, Mackeever, Palletta, Delpech, Cruveilhier, Loeb, and Tourtual; and the general result of the labours of these inquirers, though discordant enough, may be stated in the following terms.

It appears that, in all cases of introverted club-foot, the position and figure of the tarsal bones, and their relation to each other, is not exactly the same; but varies according to the age of the individual, and perhaps some other circumstances.

In general in young subjects and in early life, the shape and position of the *astragalus*, and the scaphoid or navicular and cuboid bones, are more or less altered. The *astragalus*, which is most changed in advanced life, has its round head and neck turned downwards and inward, and the articular surface of the bone, which is united with the *tibia*, is so turned outwards, that its large anterior part is not in contact with the articular surface of the *tibia*, which forms a new articular surface for itself, the posterior surface of the body of the astragalus being absorbed. For the same reason the external trochlear surface of the *astragalus* protruded forwards does not reach the surface of the external or fibular ankle. It appears, on the other hand, from the account of Loeb of a case of club-foot, that the *astragalus* may not deviate much from its usual position, though its anterior, which generally is uneven, becomes more flat, has not far from the posterior margin a small permanent process, and descends obliquely from the upper and posterior to the interior and anterior part. In short, the round head of the *astragalus* is in general turned inwards, while the upper surface is forwards and inwards, and the lower surface backward and outward. It is articulated with the *tibia* also, not by its upper but by its posterior surface.

The *os calcis* is in general much deranged in position, and especially in its relation to the *astragalus*. Thus its tuberosity may be turned inwards, the anterior process of the bone turned outwards, and the upper surface turned outwards, causing the inner margin of the bone to look downwards, and the lower margin inwards. In other cases it appears that the anterior tuberosity of the *os calcis* is turned more internally than the head of the *astragalus*, while the posterior tuberosity gives way outwardly. The strong action of the *gastrocnemii* continues to increase this malposition by drawing upwards the posterior tuberosity, while the bone is not allowed to move on its centre of motion in the proper normal direction.

The scaphoid or navicular bone is in general displaced in its relation to the *astragalus*. It is turned towards the tibial or inner ankle; and in one adult foot Dr Little found a new articulation between this ankle and the inner extremity of the scaphoid bones, which had become superior by this distortion.

The muscles and tendons also present certain changes. All the muscles are more or less flabby, and sometimes affected with the fatty transformation. The *tendo Achillis* is inserted into the inner surface and superior eminence of the *os calcis*, and is generally more or less, sometimes much shortened. The *tibialis anticus* is generally shortened. The tendons of this muscle and of the *tibialis posticus* are in several cases lengthened; and in all the muscles are a good deal turned out of their usual position.

The proposal to effect the cure of this species of deformity, by dividing the *Tendo Achillis*, appears to have originated with Maurice Gerard Thilenius, a surgeon at Frankfort, who with this view, performed an operation on a girl of 17, on the 24th March 1784, and published an account of it in his Medical and Surgical Observations in 1789. The heel was let down by this procedure two inches, and the young woman could place the whole sole of the foot on the ground, and soon after is represented to have walked perfectly well. Michaelis, overlooking the reasoning and operation of Thilenius, considering the operation for wry-neck, and the experiments of Bell on the ligament of Poupart, nearly twenty years after conceived that it was best to divide only part of the *tendo Achillis*, and accordingly performed this operation on a young man of 16, in November 1809, and in the course of the same year he performed the same operation eight times for different forms of *contractura*, viz. three cases of *pes equinus*, one of club-foot, three cases of greatly incurvated knee, and one a case of extreme incurvation of four fingers of one hand. It seems doubtful whether these were not examples of acquired contraction. Delpech afterwards, though impressed at first with some speculative apprehensions about the efficiency and the effects of the operation, had recourse to it in 1816 on a boy of 9 with *pes equinus*.

The last adventurer in this field of surgical experiment is Stromeyer of Hanover, who began in 1830 to consider the practicability and efficiency of the operation, and who is represented by Dr Little to have given it its most complete and improved form. The principles on which he proceeds are the following.

1. Those tendons which resist the motions of the foot, tarsus, and metatarsus, are divided, leaving the skin and neighbouring parts as little injured as possible.

2. The foot is not restored to its proper position immediately after division.

3. The lymph effused between the ends of the divided tendon, as soon as the small external wounds are united, begins on the third or fourth day, if not impeded, to be extended.

4. This proceeds to extend gradually, until the foot has attained its natural shape, and the tibio-tarsal articulation can be perfectly bent.

5. The extending machine, though the patient may stand and walk well, is applied for some time, lest the intermediate substance, already fibrous, becoming daily more rigid, should be again contracted.

6. The infirm limb is supported for some time by a suitable machine, constructed like that of Scarpa, lest the patient, from an extreme love of walking, should injure his foot.

The method of operating is the following. The patient is seated, while one assistant holds the knee of the deformed foot, and another depresses with his left hand the heel of the foot, and with the right pushes the tip of the foot a little upwards, that the *tendo Achillis* may be put on the stretch. The operator holds the *tendo Achillis* in the forefinger and thumb of the left hand, one or two inches above the ankles, and studies to know by touch accurately the circumference of the tendon. With a sharp scalpel, as narrow as possible, and with the edge a little concave, he punctures the skin at the same depth with the anterior surface of the tendon, then carries the knife across the tendon, using at the same time pressure, by which the tendon is divided mostly by reason of its being stretched, by the edge, before its point reaches the opposite side of the skin. If the tendon be not yet completely divided, the operator continues to cut, indifferent whether the skin be injured, until a crack like that of a tense rope breaking is heard, and the gastrocnemii are retracted. This shows that the whole tendon is divided; and sometimes this is completed without touching the skin on the opposite side. In the adult, in whom the tendon is very prominent, two minute punctures are made. Stromeyer, he says, properly prefers division of the tendon in a single course, though with two punctures, to renewing the pressure, with the view of making only one puncture.

After the division, the parts are covered and secured by adhesive plaster, splint, and bandage. In general, on the second or third, or at most, the fourth day, the small wounds are united without pain or inflammation. But care must be taken not to bind the calf tightly, by which the extremities of the tendon are brought into contact. On the contrary, it is best to keep them apart.

This operation has since been performed by various surgeons. Dieffenbach in Berlin, Bouvier at Paris, Holscher at Hanover, and Dr Little himself. Dieffenbach places the patient on his face and belly, and, by a shorter and more incurvated knife, by two or three motions, divides the tendon without touching the skin of the opposite side. Bouvier used a needle with a cutting edge in the cure of several cases of *vari,* which he described before the Royal Academy of Paris. Holscher employs rather a complicated instrument,—a curved sharp *bistouri caché;* for which, Dr Little observes, there seems to be no good reason.

In all cases of *Talipes equinus,* and most cases of club-foot, division of the *tendo Achillis* is quite sufficient to effect, with the subsequent use of extension, restoration of the foot to its natural position, shape, and motions. But when the foot is greatly introverted, and a great impediment requires to be overcome to turn the foot outwards to the horizontal axis of the *tibia,* it is requisite to divide also the tendons of the *tibialis posticus* and the *flexor longus pollicis pedis.* In some cases, in which the foot is very much turned inwards, and the curvature of the external margin is so great, that the great toe and the inner margin of the foot are much contracted, and make an acute angle with the inside of the *tibia,* and almost touch it, by which the distance between the points of origin and insertion of the *tibialis anticus* and *extensor proprius pollicis* is diminished, and the muscles are shortened by long inaction, their tendons also require to be divided. This, however, is represented to be very seldom necessary; and Dr Little is persuaded, that, to the cure of the most formidable cases of club-foot *(Talipes varus,)* the division of the *tendo Achillis* and the tendons of the *tibialis posticus* and *flexor longus pollicis pedis,* with subsequent mechanical extension, is perfectly sufficient. He even counsels against the rash division of the tendons of the muscles now mentioned, because, for the sake of antagonism against the gastrocnemii, the *tibialis posticus* and others, the *tibialis anticus* and *flexor longus pollicis pedis,* are of much use in retaining the foot in its right position.

The tendons of the *tibialis posticus* and *flexor longus pollicis pedis* were divided by Stromeyer; and those of the *tibialis anticus* and *extensor proprius* were divided by Dieffenbach, both with favourable result.

Dr Little concludes his paper with a detail of his own case and four others, which, as our limits will not at present allow us space for them, we must defer to a future opportunity.

Case of abscess in the ham simulating popliteal Aneurism. By HENRY GRAHAM, Surgeon.—Cases sometimes occur of pulsating tumours in the situation of arteries, in which it is difficult to distinguish whether the affection be aneurism, or an abscess to which a pulsatory impulse is communicated by the artery beneath. As an illustration, I beg leave to detail the following case, which occurred to me while surgeon of the H. E. I. C. late Ship Charles Grant, in the year 1836.

E. S. aged 38, when admitted on the sick list April 7th, presented rather an emaciated appearance. He stated that he had felt pain and stiffness in the right ham for two days. On examination, a soft tumour, about the size of a pigeon's egg, was detected in the situation of the popliteal artery, communicating a distinct pulsatory sensation to the finger, which ceased on compressing the femoral artery. Pressure produced much pain; and a degree of numbness was complained of in the leg. There was no redness of the integuments of the ham, nor any tumefaction of the limb. He had sprained his thumb a few days before while in one of the cutters, endeavouring to save a man who had fallen overboard. He did not remember having received any injury in the leg on that occasion, though he was obliged to exert himself very much on account of the heavy sea running at the time. A cathartic was administered, and the affected part rubbed with a stimulating liniment.

8th, The symptoms were much the same, and the general health unaffected. The bowels had been moderately opened by the cathartic. Tongue clean. pulsation very perceptible in the tumour, which had not become larger. A blister was applied to the back part of the thigh, about four inches above the ham, and a saline aperient administered.

9th, The blister had risen well, the pain in the tumour had abated, and it was rather diminished in size. A lotion of sugar of lead with opium was applied.

11th, In consequence of having gone to the head, contrary to orders, to relieve his bowels, the symptoms appeared aggravated. The tumour occupied a larger space in the ham. The pain was increased, and the pulsation was not quite so distinct as before. He complained more of numbness in the leg. A poultice was applied, and *Sulph. Magnes.* with *Aq. Acetat. Ammoniae* exhibited. As the position of the limb in his hammock was rather uneasy, a standing bed-place was erected for the patient.

18th, All the symptoms have been much the same since last date. The treatment had consisted of poulticing the tumour, the occasional exhibition of Epsom salts with *Aq. Acet. Ammon.* and the allowance of a small quantity of fresh animal food. The patient had had no rigors or flushings of heat. A very obscure feeling, however, of fluctuation was perceptible in the tumour, which retained its circumscribed character, and the pulsation was still distinct. It was now cut down upon, and after the incision had reached a considerable depth, nearly in the middle of the popliteal space, about an ounce and a half of pus was evacuated. A roller was applied from the toes to about half way up the thigh, with a compress over the sac. Pulse 84, rather weak; bowels open; tongue clean and natural. The pus continued healthy for a few days, and then became thin and bloody. A little wine and soup were now allowed in addition to the animal food.

May 3d. The probe could now be passed to the capsular ligament of the knee-joint, and nearly four inches upwards between the muscles of the thigh. The discharge was an ill-conditioned yellowish serum, attended, however, with no peculiar fœtor. The patient complained much of pain on attempting to make full extension of the limb.

15th. There had been little alteration in the state of the patient since last report. He complained of debility, though the communication had not much increased, and the pulse was rather fuller and stronger. The tongue was clean; and the bowels were kept open by mild aperients. An injection, composed of one grain of sulphate of zinc in one ounce of water had been thrown daily into the sinuses, which had a free external opening, in which a tent was placed and compress carefully adjusted.

Sulphate of quinine with aromatic sulphuric acid was exhibited internally. The discharge was the same in appearance but diminished in quantity. No pain was complained of; the limb had been kept extended as much as possible by means of splints, but it could not be brought perfectly straight. The allowance of wine was increased.

18th. The discharge had been decreasing, and appeared more healthy. The limb could now be retained in a state of perfect extension, and the general health was much improved. The sulphate of copper was substituted for the sulphate of zinc as an injection.

The patient continued doing well until June 8th, when he returned to his duty.

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Plate 1, p. 81 & 84, Vol. L.

Fig. 1.

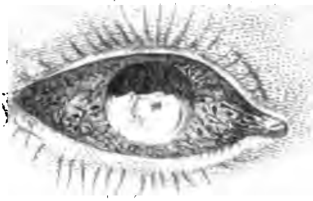


Fig. 2.

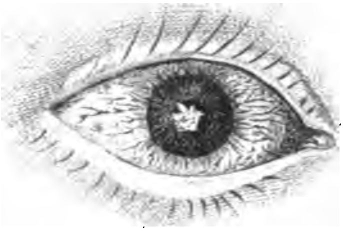
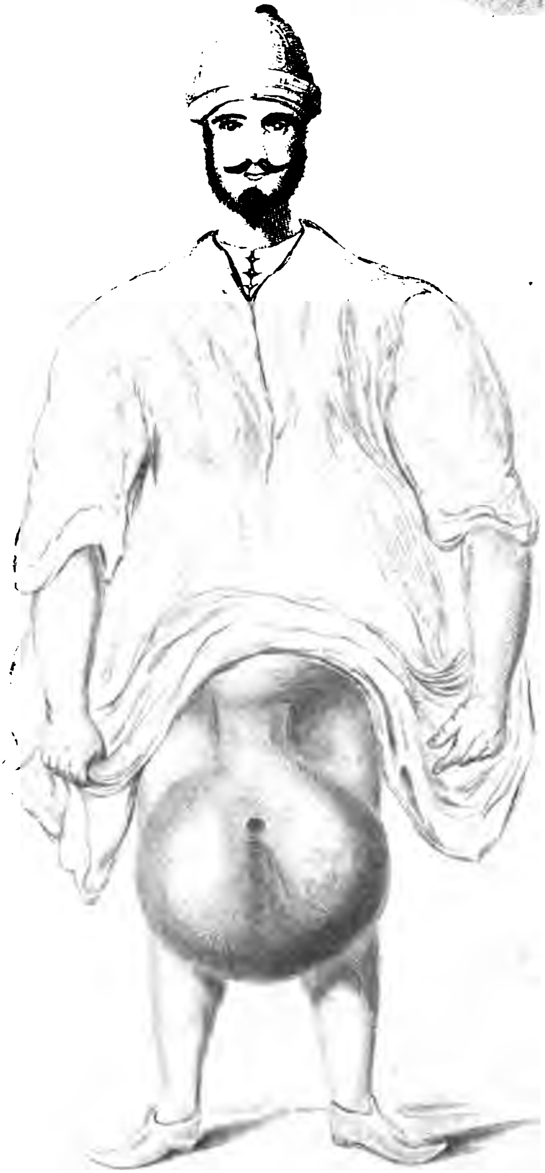


Fig. 3.



HYPERTROPHIA SCROTI. p. 84.

THE

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1. OCTOBER 1838.

PART I.

ORIGINAL COMMUNICATIONS.

ART. I.—*Researches into the History of the Umbilical Cord in the Human Subject.* By FLEETWOOD CHURCHILL, M.D. Licentiate of the King and Queen's College of Physicians in Ireland; Physician to the Western Lying-in Hospital; and Lecturer on Midwifery, &c. in the Richmond Hospital Medical School, Dublin.

HAVING some time ago contributed some observations upon the length of the umbilical cord, and its influence upon parturition,* it has appeared to me worth while comprising in one essay all the facts on record which bear upon the history of this structure, most of which were unnoticed in the paper alluded to.

The funis during fœtal life is the connecting link between the mother and child, and may be compared to the stem of a tree, through which nourishment is transmitted from the root (the placenta) to the branches (the child.)

Its functions are limited to fœtal life, and its existence terminates with its functions.

It has been stated by Professor Burns of Glasgow, that "when the ovum is first visible in the uterus there is no cord, the embryo adhering directly to the involucra; but it soon recedes, and within the sixth week a cord of communication is perceptible."† Hunter previously made a similar statement. This, however, has been controverted by other authorities, and most recently by Breschet and Velpeau; and as the result of many examinations, they conclude, that at the earliest period a cord is perceptible if the ovum be perfect; and the latter author attributes the contrary description to their being taken from imperfect or injured ova. As far as I have had opportunities of examination, I must concur with M. Velpeau. It is generally visible about the fifteenth day, when it rather exceeds the length of the fœtus. Up to the third week it is thin and cylindrical; from the third to the ninth it increases in size, and we find two or three vesicular swellings with narrower intervals,—the last swelling persisting the longest.

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* Dublin Journal, Vol. ii. p. 21.

† Principles of Midwifery, 9th edit. p. 228.

It contains at this period the vitelline duct, with the omphalo-mesenteric vessels, a portion of the urachus, the fœtal intestines at its umbilical extremity, the blood-vessels, and some gelatine.

About the end of the second month the intestines are enclosed in the abdomen, and the vitelline duct and urachus are obliterated, so as scarcely to be detected afterwards.

If we examine the funis at the termination of pregnancy, we shall find much that is interesting and important in its connections, structure, and varieties. It takes its origin from the surface or circumference of the placenta. Osiander* has carefully examined the point of connection in 36 cases. In two it took its rise from the circumference, forming what has been called a battledore placenta; and in one only, exactly from the centre of the cake. In most cases it was about two inches from the edge, (the majority of placentæ being about six inches in diameter.) The other extremity is inserted into the umbilicus, nearly in the centre of the entire length of the child, but so much nearer to the pubis, as the child is under the full time. (Velpeau. †)

The thickness of the cord varies according to the quantity of gelatine it contains. It is generally about as thick as the little finger, but sometimes much thinner; and Mauriceau ‡ mentions having seen it as thick as his arm. Froriep § remarks, that its size and thickness are in an inverse ratio to the increase of the child. I am not aware that this has been verified by other authors; and it is certainly contrary to the few observations I have made.

Nothing can be more variable than the length of the cord. Dr Davis || says, that a cord of two inches long has been met with.

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* Handbuch der Entbindungskunst, Vol. i. p. 482.

† Traité Complet de l'Art des Accouchemens, ed. de Bruxelles, p. 167.

‡ Malad. des Femmes Grosses. Obs. 301.

§ Handbuch der Gebürtshülfe, p. 155.

|| Obstetric Medicine, p. 1080.

Guillemot,[*] one of two inches and a-half; Montault,[†] one of four inches; Meissner,[‡] one of five inches; Mauriceau,[§] Baudelocque,[||] and Morlanne,[¶] one of six inches; Haighton,[**] one of seven inches; and Dr Montgomery,[††] two of eight or nine inches.

Dr Hamilton remarks,[‡‡] "Two cases have occurred to the author where the naval string was naturally so short, that it became necessary to tie it, and to cut it within the vagina, consequently its length could not have exceeded six inches."

On the other hand, M. Baudelocque[§§] saw one of 46 inches; M. Heritier, one of 57 inches, which was coiled five times round the neck; Morlanne,[||||] one of five feet; Dezeimeris, one of 28 inches in a fœtus of four months; and Velpeau,[¶¶] another of 31 inches at six months.

These cases, however remarkable, being isolated, afford us no means of judging of the frequency of their occurrence, nor of the ordinary length of the funis. I have been able to find but few tables of measurements in any authorities to which I have access. Adelmann of Fulda has given 49 cases; Henne of Copenhagen, 130, in Siebold's Journal of Midwifery; and Osiander,[***] 32, making in all 211. To these I can add 263 cases from the records of the Western Lying-in Hospital and my own practice, making a total amount of 474. The measurements were as follows:

In 6	the cord was 12 inches long.	In 8	the cord was 26 inches long.
2	13	5	27
12	14	12	28
22	15	2	29
37	16	13	30
10	17	3	31
117	18	1	32
15	19	3	33
45	20	7	36
21	21	1	42
37	22	1	46
12	23	1	48
70	24	1	54
10	25		

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[*] These, No. 120. Paris.

[†] Archives Gen. de Med., Vol. xxix. p. 567.

[‡] Progrès des Accouch. au 19me siecle.

[§] Mal. des Femmes Grosses, Obs. 640.

[||] L'Art des Accouch. Vol. i. p. 251.

[¶] Journal des Accouch. Vol. ii. p. 18.

[**] Lancet, 1828, Vol. ii. p. 227.

[††] Dublin Journal, January 1834, p. 433.

[‡‡] Practical Observations, Part ii. p. 69.

[§§] L'Art des Accouchm. Vol. i. p. 252.

[||||] Gardien Traité des Accouchm. Vol. ii. p. 165.

[¶¶] Embryologie, p. 58.

[***] Handbuch der Entbindungskunst, Vol. i. p. 504.

Thus we find that the most frequent length was 18 inches, the next 24, and the next to that 20 inches, so that we may agree with those writers who state the average length of the cord to be between 18 and 24 inches. Extremely short cords must be very rare, and scarcely to be calculated on in practice, since out of 474 cases none were under 12 inches. Only four were above 3 feet.

Siebold in his report of the Marburg Lying-in Hospital, states that the shortest cord was 13 inches, and the longest 42 inches.

I have no data by which to test the observation of Osiander, that male children have generally longer cords than females.

As to the anatomical structure of the cord:—It consists of two arteries and one vein,[*] imbedded in a semifluid jelly, and inclosed by two membranous sheaths[†] derived from the amnion and chorion. The latter forms the inner sheath, and the former the external one. It has been advanced by some physiologists, that the outer coat or amnion is a prolongation of the epidermis of the fœtus; but this representation is refuted by the existence of these membranes before the closure of the abdomen.

The colour of the sheath is generally whitish, but occasionally it is found yellow, brown, or greenish.

The umbilical vein is of larger calibre than either artery, but having weaker parietes, so that when cut across it collapses. It has neither knots nor valves, but in it are sometimes formed by dilatation, pouches resembling varices. (Osiander.) It carries blood of a dark purple colour, with very little if any excess of oxygen.

It is formed by the concentration of the smaller placental vessels, and after entering the abdomen by the umbilicus, it terminates at the liver, transmitting its contents partly through the hepatic veins, and partly through the *ductus venosus.*

The two arteries arise from the hypogastrics, are much smaller, though longer than the vein, and having much thicker coats, in consequence of which their mouths remain open if the cord be cut across. In their course through the funis, they wind spirally from left to right (eleven times out of twelve; Velpeau,[‡]) and form false knots or loops, which are said to be more numerous in first children. In Germany the "priestesses of Lucina," take these knots as an augury, indicating the number of children a woman is to have.

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[*] Gardien observes, that this arrangement ceases when the vessels subdivide in the placenta, there being then only one artery to each vein. Traité compl. des Accouch. Vol. ii. p. 165.

[†] Vagina funiculi umbilicalis, Osiander. Investitura, Hoboken. Intestinalium, Bankeri.

[‡] Embryologie, p. 60.

On arriving at the inner surface of the placenta, each artery divides and subdivides until their branches terminating in, and interlacing with, the radicles of the umbilical vein, together form the mass of the placenta.

There is no perceptible difference in colour between the blood they carry, and that returned by the umbilical vein.

By all British authors, I believe, and by most continental, the pulsation of these arteries is said to be exclusively derived from the fœtal heart, and dependent upon it; but this is denied by Osiander, who contends that they have an independent action at least under certain circumstances. In support of this view, he adds in a note, "More than once I have seen the artery pulsate, when the placenta, placed in a glass vessel of warm water, was brought into contact with the positive pole of a galvanic battery, or even when the water in which it was placed, was so influenced. The umbilical artery of a still-born child has also been found pulsating, when no pulsation could be detected in the heart, and when it was found impossible to re-animate the infant."* The arteries, he further observes, continue to pulsate, if the placenta be separated from the uterus and placed in warm water.

After the birth of the child, if the cord be not divided, its pulsations cease naturally about fifteen minutes after respiration is fully established.

At the fœtal end of the cord, we may detect more or less of the obliterated urachus.

A long-continued controversy has been maintained, as to whether the funis possesses lymphatics or nerves; and though the evidence in favour of their presence is in my mind tolerably satisfactory, yet, as demonstration is not easy, there remains room for scepticism in those so inclined.

Lymphatics are stated to have been seen by Everhard, Pascoli, Needham, and Röslin, according to Schroeger.† They were demonstrated by Wrisberg, as pointed out by his pupil Michaelis.‡ They were afterwards seen by Ultini,§ and Reuss. Hunter, Hewson, Cruickshank, and Mascagni failed in detecting them, and disbelieved their existence.

Osiander injected them with quicksilver in April 1803, and also subsequently.‖ He could never find them at the extremities of the funis, but merely infers their connection with the placenta and fœtus.

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* Handbuch der Entbindunkskunst, Vol. i. p. 489.

† De Functione Placentæ Uterinæ, ad virem illustrem S. T. Soemmering epistola. Erlangen, 1799.

‡ Observ. circa placentæ ac funiculi umbilicalis vasa absorbentiâ. Gott. 1790.

§ Ueber die Einsaugenden Gefässe des Mutterkuchens, in Meckel's Archiv, Vol. ii.

‖ Handbuch der Entbindungskunst, Vol. i. p. 494.

The following extract from the Dublin Journal,[*] contains a summary of the results of Fohmann's experiments, by the late Dr William West of this city. "The funis consists, its blood-vessels excepted, of a tissue of absorbents, which is so close that the point of a needle cannot be introduced into any part of it without wounding one." "To fill them with mercury, nothing more is necessary than to pierce the sheath with a small lancet, and then inject the metal through a fine tube." "By injecting with mercury the tissue of absorbents at the placental extremity of the funis, and driving the metal towards the placenta with the handle of a scalpel, we may sometimes succeed in injecting a net-work of absorbents that is spread out between the placenta and its investing membrane. I never saw any vessels rising from this net-work, and ramifying into the membrane (the chorion) as has been observed with respect to the sheath of the funis; and I but seldom discovered any branches penetrating the parenchyma of the placenta. Whither they proceed when they do penetrate, I have not been able to make out; but I am inclined to think they reach its uterine surface.

"On the passage of the tissue of absorbents of the funis into the abdominal region of the fœtus, the superficial ramifications at the distance of a few lines from the umbilical ring, become so very minute as to be scarcely discoverable by a strong lens, even when injected with mercury. On the other hand, the deeper seated vessels gain in strength what they lose in diameter, so that we can employ the handle of the scalpel to drive the mercury onward through them, without any fear of their rupture. On reaching the umbilical ring, they become somewhat larger; and some of them run into the dense tissue of absorbents between the epidermis and the cutis, of which the sheath of the funis is only a continuation. The rest unite into branches, which proceed under the cutis, and at the distance of some lines from the umbilical ring, generate a lymphatic trunk, which, running in a circular direction, forms another ring." And in the next Number of the same Journal,[†] we find the following notice. "In the last Number of this Journal we inserted a notice of Fohmann's discovery and successful injection of lymphatics in the placenta and funis of the human race. More recently, a similar investigation has been undertaken, and with an equally satisfactory result, by Dr Montgomery of this city, who has succeeded in injecting with mercury great numbers of these delicate vessels, running along the cord, and, for the most part, following the spiral course of the umbilical arteries."

The existence of nerves, like that of lymphatics, has been the subject of a long-continued dispute, and on either side of the question great names are arrayed. They have been demonstrated in the funis of calves by Larrey (in 1812) and Teichmeyer, and also by Sir E. Home[*] and Kilian.[†]

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[*] Vol. v. p. 293.

[†] Ibid. p. 482.

I do not find, however, that the knife of the anatomist has been able to do more than to detect them at the abdominal insertion of the cord, though arguments have been adduced strongly confirming the inference, that they actually accompany the entire developement of the umbilical vessels to their termination. (Schott.)

Osiander believes in their presence, and mentions, as in favour of this opinion, the occurrence of spasmodic action of the abdominal muscles, when the cord is divided; the action of galvanism, and inflammation attacking the vessels, &c.

In 1836, Dr J. A. C. Schott[‡] published a very good summary of the evidences on this subject, concluding in favour of the presence of nerves in the fœtal cord. His reasons for this belief I extract from a review of his work in the Dublin Journal.[§]

"1. The irritability of any part, it will be admitted (he says) is in proportion to the nervous power allotted to it. Now, of all arteries, those in the umbilical cord appear to be the most irritable, therefore they must be supplied with nerves.

"2. Osiander, Senior, considered (and Dr Schott agrees with him) that the arteries of the cord have in some degree an independent action, founded upon his observing a pulsation in the cord after the heart had ceased to beat. Naegele records a similar fact. But independent action involves necessarily the presence of nerves.

"3. The nutrition of any part must essentially depend upon nervous influence. Now the arteries themselves increase with the elongation and augmentation of the cord, and must consequently be thus influenced."

In addition to the above considerations, Dr Schott adduces the evidence of pathological conditions of the cord as necessarily involving the existence of nerves.

It would be desirable to possess demonstrative proof of their presence if possible; but in the absence of that, I think the arguments from physiology and pathology very conclusive.

The vessels of the cord, with whatever nerves it may be endowed, are imbedded in a quantity of thick serosity, contained in a cellular web, something in the manner of the vitreous humour of the eye. This has been called the jelly of Wharton, and upon the amount of this substance depends the thickness of the cord. It is sometimes colourless and transparent, in other cases yellowish or reddish, but without any effect upon the growth of the child.

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[*] Philosophical Transactions, 1825.

[†] Ueber die Kreislauf des blutes im Kinde. Carlsruhe, 1816.

[‡] Die Controverse ueber die Nerven des Nabelstranges und seiner gefässe, &c.

[§] Vol. x. p. 457.

It is rather more abundant towards the fœtal end of the cord, and the cells in which it is contained being of various sizes, gives the appearance of pouches to different parts of the cord.

When the cord is cut across, a great portion of the serosity escapes, and if care be not taken to secure by a tight ligature the fœtal portion, fatal hemorrhage may be the consequence of this diminution in bulk.* So much for the ordinary structure of the funis. There are, however, some very curious and important deviations from it, which it may be well to notice briefly.

1. The vessels of the cord may divide at two, three, or four inches from the placenta, or even near the abdominal extremity instead of being inserted into that organ together. (Deneux, Velpeau.)

2. Instead of one vein and two arteries, there have been found two veins and but one artery—one vein and one artery, (Baudelocque, Marin, Blandin, Velpeau,) or three arteries. (Osiander.)

3. Two cords have been observed, attached to one placenta, in the case of a single child.

4. The vessels are sometimes partly or wholly closed.

5. Many cases are on record of the entire absence of cord and *umbilicus*; but upon these Velpeau throws great doubt.

A case of an acephalous fœtus recently occurred at the Western Lying-in-Hospital, which had formed adhesions by the back of the neck to the placenta, from which a funis arose, and passing round the right side of the neck, was inserted into the depression between the face and neck, just about the spot where the angle of the jaw should have been, had there been no malformation. The vessels of the cord passed behind the clavicle and ribs down into the chest and abdomen. There was a depression, or *cul de sac*, about the proper situation of the umbilicus. This is the most remarkable deviation from the usual course of the funis which I have ever seen.

Chaussier† relates one where the placenta was attached to the liver, and another is on record in which it adhered to the abdomen.‡

6. Capuron mentions that when the umbilical ring is imperfectly closed, the sheath of the cord sometimes contains a portion of the intestines.§

7. In the case of twins, the placentæ and cords are generally distinct; but sometimes a cross branch establishes a communication between the two.

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* Burns, Principles of Midwifery, 9th ed. p. 228.

† Bulletin de la Faculté, Vol. v. p. 313. ‡ Guillemot, These, No. 120.

§ Cours d'Accouchemens, p. 130.

8. The cord may be inserted into a smooth part of the chorion, instead of into the part where the placenta is forming, and the fœtus perish for lack of nourishment.

9. The cord (at an early period) may be so twisted as to diminish the calibre of the vessels and impair the nutrition of the fœtus.*

10. The vessels of the cord may become varicose, or the sheath of the cord may contain hydatids. (Burns.)

11. The coats of the vessels may give way and excessive hemorrhage result. (Burns.)

12. The cord may be torn across by the mother's falling or receiving a violent concussion. (Levret, Baudelocque, Burns.)

The external arrangement of the cord may also vary from its ordinary condition.

1. In addition to the false knots or loops formed by the vessels of the cord, as already noted, we sometimes find real knots, either single or double.

Baudelocque has given a plate of each,† and Osiander cases of both.‡ Matthias Saxtorph has published upon the subject a very interesting memoir,§ in which several cases are related. In one, the fœtus presented with the shoulder, and was turned and delivered successfully. On the cord was found one of these knots (not formed during the turning) which was drawn tight. The vessels were injected with wax, which passed readily through the vessels implicated in the knot. When untied, it still curled into a circular shape, and the inside of the circle was flattened. The calibre of the vessels was somewhat diminished.

A second case was more remarkable. A lady of rank was frightened on returning home from church, and the shock occasioned the evacuation of the *liquor amnii* four weeks before she gave birth to a healthy lively child, upon whose funis was found a *double* knot drawn tight. The motions of the child were not felt after the discharge of the waters. An injection passed through the vessels of the knot, though with rather more difficulty than under ordinary circumstances. Saxtorph considers that the evacuation of the *liquor amnii* saved the life of the child, by lessening the cavity of the uterus, and diminishing the stress upon the knot. Mr Rogers || remarks that he found these knots no obstacle to the injection of the placenta through the cord.

Judging from the appearance of the knot when untied, there

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* Montgomery, Signs of Pregnancy, p. 263.

† L'Art des Accouchemens, Vol. i. p. 255.

‡ Abhandlungen und Nachrichten, S. 211.

§ Von der Knoten und Verschlingungen am Nabelstrange lebender Kinder. Gesamm. Schriften, p. 187.

|| Lancet, 1829, Vol. i. p. 162.

can be little doubt that it is formed at an early period of utero-gestation, favoured by the length of the cord, the quantity of *liquor amnii*, and the small size of the child, permitting an extent of motion, impossible afterwards. Undoubtedly, a knot may be formed, as Professor Burns suggests,* "by the child passing through a coil of it during labour," or by a want of due care in turning the child; but these are not the true knots of which we are now speaking, and when untied, do not assume a circular form.

These knots are spoken of as highly dangerous to the life of the child, if not always fatal. Levret remarks,† "On trouve quelquefois le cordon ombilical nouè d'un vrai nœud; on en a vû de tortilles en double; on en a mème trouvé, qui etaient entierement separès du placenta: quand une de ces trois circonstances arrive, l'enfant perit ordinairement avant terme, ou il nait du moins fort emacié." And more recent authors have repeated this opinion more or less modified. Baudelocque, Saxtorph, and Gardien differ from this view, and state that little or no danger results from this disposition beyond the varicose state of the vessels, on either side of the knot, if it be drawn tight. This position is established by the fact that children are born healthy, who for months have been subjected to all the consequences of such knots.

2. The funis may be coiled round the child's neck, extremities, or body, in consequence of its excessive length, and the movements of the fœtus *in utero*. If the length of the cord be very great, several coils may be found. I have quoted from M. Heritier, a case where it was five times round the neck. An artificial coil may be formed during the expulsion of the child, or in turning.

As to the frequency of this occurrence; Richter of Moscow met 27 examples out of 624 cases;‡ Siebold, at the Berlin Clinique, 21 out of 137 cases,§ and Kluge 63 out of 268. ‖ I give these on the authority of M. Velpeau, as I have not the documents to refer to. Out of 242 cases, of which notes were taken under my own superintendence, it occurred 63 times. Thus, in 1271 cases, there were 174 examples of coiling, or rather more than one in seven.

As to the *physiology* of the cord; after the second month, it is merely a sheath containing the vessels of fœtal nutrition, and transmitting the impure blood to the placenta for renovation, and afterwards returning it to the child.

The arrangement is in one respect at least analogous to that for the lungs subsequent to birth, viz. the impure blood is conveyed to its destination by arteries, and when renovated is returned by the vein, contrary to what occurs in every other structure of the body. I may repeat, that though we have every reason to suppose that a process, analogous to aeration in the lungs, is carried on in the placenta, yet no similar difference can be observed between the colour of the blood in the veins, and that contained in the arteries. The blood in both is of an equally dark colour, or nearly so.

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* Principles of Midwifery, p. 228.

† L'art des Accouchemens, §. 306.

‡ Synopsis prax. obstetr. p. 417.

§ Bulletin de Ferussac, Vol. xxi. p. 41.

‖ Ibid. p. 402.

Connected with the cord, there are two *medico-legal* questions which I must not pass over.

1. We have already seen that the umbilical insertion of the cord, which at the earliest period of fœtal life is near to the pubis, gradually recedes from it, and approaches the ensiform cartilage. In the words of Velpeau,* "Le point du ventre qui donne insertion au cordon ombilical est d'autant plus eloigné de la poitrine ou d'autant plus rapproché du pubis, que la grossesse est moins avancé." According to the researches of Chaussier and Bigeschi, this gradual elevation of the umbilicus appeared to have brought it, at the time of birth, to the centre of the whole body. Consequently, any falling short of this point would indicate prematurity; and the test was proposed to be used in those cases where a doubt exists of the completion of pregnancy.

Dr Montgomery † observes, "The situation of this middle point was first proposed as a test of the age of the fœtus by Chaussier, and his observations have been since confirmed by several others.‡ From the trials I have made of this test, I attach considerable value to it."

The accuracy of the measurement upon which the test is founded has been lately called in question by M. Moreau, Professor of Midwifery at Paris. He is stated § to have measured carefully 500 children born at La Maternitè, and to have found out of this number, only four instances of cords inserted exactly in the centre of the whole length of the body. In the remainder the point of insertion fell, on an average, from eight to ten lines below the middle. In a few children born about the sixth or eighth month the cord was inserted into the middle point.

Though this circumstance may not be adequate to disprove the evidence of high authority in favour of Chaussier's test, it is quite sufficient to throw a doubt upon his facts, and to require additional investigation. I am sorry that as yet I can contribute nothing to the elucidation of the question.

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* Traitè complet de l'art des Accouchemens, ed. de Bruzelles, p. 167.

† Exposition of the Signs and Symptoms of Pregnancy, &c. p. 264.

‡ Capuron, p. 172. Hutchinson pp. 6–14. Foderé, Vol. ii. p. 149. Burns, p. 114–118. Metzger by Ballard, p. 168. Beck, ed. 5th, p. 180 et seq.

§ Lançette Française, No. 140, 1837. Lancet for Feb. 10, 1838.

2. In cases of children found dead under suspicious circumstances with knotted cords, it has been supposed that they might be formed after death to conceal infanticide, by throwing the suspicion upon them as the cause of death: and it is a matter of some consequence to ascertain whether they could produce such serious effects, and also how the artificial knots may be distinguished from natural ones. (Saxtorph.)

As far as the evidence of individual cases can go, we have seen reason to disbelieve in any injurious consequences resulting from these accidental formations, and we have the highest testimony to the same effect. (Baudelocque, Saxtorph. Osiander, Gardien.)

Further, it appears possible to come to a pretty accurate conclusion in most cases, as to the ancient or recent formation of the knots. In all such cases, we should carefully examine whether the cord be tight or loose, and whether the vessels on either side be swollen or varicose. The vessels should then be injected without untying the knot, and notice taken of the manner in which the injection passes, whether freely or with difficulty. The cord may then be untied, and we should observe whether it remains loose or curls into a circle at the knot, and whether the inside of the circle be flattened.

If the knot be moderately loose, and the vessels on either side varicose; if the injection pass easily, and the cord curls when untied, and the inside of the circle be flattened, we may conclude that the knot is of old standing, and also that it could not have caused the death of the fœtus.

If, on the other hand, the knot be drawn very tight, so that the injection cannot pass; if there be no varicose state of the vessels; no flattening of the inner surface of the knot, and no curling round when untied—the evidence is in favour of the recent formation of the cord, either during the delivery or subsequently, and more or less against the supposition of its having caused death.

There are several ways in which the cord has been supposed to exert a powerful influence upon parturition.

1. It is stated by early writers, and repeated again and again by their successors, that a *short cord* may impede the progress of labour, by retracting the head of the child at the termination of each pain; may cause inversion of the uterus; detach the placenta, or may itself be ruptured; and by some these consequences are spoken of as if they were of frequent occurrence.

Supposing the cases of extremely short cords, for instance under six inches, to be perfectly correct, it is clear that there would be danger of premature detachment of the placenta, or rupture of the cord; but I do not believe that labour would be retarded, or that the uterus would be inverted.

Again, it is doubtful whether a child could be delivered with a cord only six or seven inches long, unless the labour were premature; so that here we have a similar danger of placental separation and rupture of the funis, with perhaps more risk of inversion.* But the remedy (as in Dr Hamilton's cases) is within our reach, viz. cutting across the cord after the head is born.

We learn from Dr Montgomery's cases that a child may be safely expelled whose cord measures from eight to nine inches; and now, if we consider the frequency of the occurrences of cords shorter than this, we may pretty nearly estimate the amount of danger.†

In 474 cases which I have detailed, there was no cord under 12 inches.

In Siebold's Report of the Berlin Lying-in-Hospital there was none under 13 inches.

If we could estimate the results of the experience of Guillemot, Montault, Meissner, Mauriceau, Baudelocque, Morlanne, Haighton, &c. who have each given one example of a very short cord, and ascertain the proportion of those individual cases to the whole, we should find it very slight indeed.

And if further we should think it not unfair to take such published reports of hospitals and private practice as are noted for their accuracy, and yet in which there is no mention of a single short cord, (short enough I mean to cause accidents,) and add them to the other estimates, and then divide the total by the number of short cords on record; the results would show the extreme rarity of such cases, and more than justify Naegele's statement, that the cord is rarely or never so short as to hinder labour, or to entail any serious consequences.

2. Precisely similar dangers have been attributed to the coiling of the cord around the child's neck or limbs, and this because it was fancied that the loss of length by the coil would make the case equivalent to one with a short cord. Had this been true we should have had many accidents on record, for the coiling is a frequent occurrence. Out of the 1271 cases I have already enumerated, there were 174 examples of this disposition of the cord, or rather more than one in seven; and yet there is no hint of any inconvenience or accident. The explanation is quite easy, if such

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* Inversion was the more readily attributed to the stress upon a short cord, in as much as its occurrence after the birth of the child was in almost every case supposed to depend upon undue pulling of the cord for the purpose of removing the placenta, but it has been recently shown by my friend Mr Radford of Manchester, (Dublin Journal, Vol. xii. pp. 25–215) that it may occur without the cord being touched, and that probably many cases have been attributed to this cause which were really instances of spontaneous inversion.

† In speaking thus, I am assuming that the case is a head presentation, (as I believe all those referred to were;) if, however, the feet should present, a longer cord will be necessary for the extrication of the infant, as the distance is greater from the navel to the crown of the head, than from the navel to the buttocks.

cords be measured, for it will be found that this coiling never takes place with a short cord, very rarely with one of the ordinary length; and most generally when the cord is some inches beyond the common standard. I am sorry that I can only refer to my own documents in support of this statement.

Of the 63 cases of coiling (out of 242 patients,) noted at the Western Lying-in-Hospital, none were under 18 inches long, and only two so short as that; the most common length was 24 inches. In one funis of 30 inches, and in another of 42 inches, it was twice round the neck. Out of a considerable number in private practice, it never occurred in a cord under 20 inches.

The single coil is a loop extending from the umbilicus round the neck and back again, and when tight will not occupy more than seven or eight inches, and a second will not require more than five or six inches additional, leaving of the shortest cord with which the single coil was formed 10 inches free, and in the cases of double coiling respectively, 16 and 28 inches free.

Thus, taking the shortest cords which were twisted round the neck, we find them equivalent, not to the cases of extremely short cords occurring naturally, but to those of ten inches and upwards; and we have already seen that from these we cannot anticipate any unpleasant consequences; for that in Dr Montgomery's case and others, a funis of eight or nine inches permitted the safe delivery of the child without any interference.

It does not therefore appear to me unwarrantable to conclude, that, as a coil is not formed unless the cord be 18 inches long or upwards, none of the accidents attributed to it are to be feared, and further, that though it may be desirable to slip the coil over the child's head or shoulders, when possible to relieve the stress upon it, yet it cannot be a matter of the practical importance which it is sometimes represented to be.

Baudelocque* and others have supposed that, if the coil be drawn tight, an arrest of the venous blood returning from the head of the child would be likely to occur, and to end in cerebral congestion or apoplexy. This may be the case if the tightening take place during labour, in consequence of the cord not descending freely along with the body of the child, though, as the pressure can be relieved the moment the head is born, I should rather doubt whether the serious consequences which he describes actually ensue; but we have positive evidence, that the tightening during intra-uterine life is perfectly innocuous, in the fact related by Professor Busch in his Report of the Berlin Lying-in-Hospital.† He met with a case where the cord had been twisted so tightly round the neck, that a deep groan was observed at birth; but the accident had not injured the growth or health of the infant.

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* L'Art des Accouchemens, Vol. i. p. 254.

† British and Foreign Medical Review, April 1838, p. 579.

When referring to Baudelocque's opinion, Velpeau remarks that there are no facts on record which substantiate the supposed danger.

3. The cord may be prolapsed either at the commencement or during labour. Though by no means of unfrequent occurrence, its comparative frequency varies very much.

Mad. Boivin[*] mentions its occurrence 38 times, (25 times before and 13 during labour,) out of 20,517 cases. Twenty-five cases were turned, and in 13 the forceps were used. Twenty-nine children were saved, and seven lost. Two were putrid.

Mad. La Chapelle[†] met with 23 cases out of 15,652; 13 were treated by the forceps, and 10 by turning; 17 were saved, and six lost. M. Baudelocque[‡] out of 17,499 labours, reports 41 cases of prolapsed funis. Dr Bland[§] gives one case of prolapse in 1897 cases of labour.

Dr Merriman, gives 11 cases in 2947 labours.[||] Dr Granville, one case in 640 labours.[¶]

Richter of Moscow,[**] found four in 624, and Mazzoni,[††] 18 in 450 cases. Dr Clarke,[‡‡] in his report of the Dublin Lying-in Hospital, met with 66 cases of prolapsus of the cord in 10,387 deliveries, but the Doctor does not believe that all the cases of this kind were recorded in the registry. Seventeen children were born alive.

Dr Collins,[§§] in his valuable report of 16,654 cases, occurring in the same hospital between the years 1826 and 1833, states that 97 cases of prolapsed funis occurred, 12 of them in twin cases (*i. e.* I presume the cord of one of the twins prolapsed,) 24 children were saved, seven were putrid.

At the Coombe Lying-in Hospital in this city, Mr Gregory reported in 1830,[||||] that since its commencement in February 1829, 691 patients had been delivered, among which there were seven funis presentations, four of which were lost.

At the Wellesley Dispensary, Dr Samuel Cusack[¶¶] reported in 1830, five cases of prolapse of the funis in 398 labours, and all appear to have been lost.

In the reports of this institution for the year 1832,[***] 1833,[†††] by Dr Maunsell there were two cases of prolapse of the funis in 839 labours. No mention is made of the result to the children.

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[*] Memorial, p. 354.

[†] Pratique des Accouch.

[‡] L'Art des Accouchemens.

[§] Philosophical Transactions, 1781.

[||] Appendix to Synopsis, p. 335.

[¶] Report of Westminister Dispensary, p. 25.

[**] Synopsis Prax. Med. Obstet. p. 416.

[††] Statistica Ostetrica di Santa Maria Nuova di Firenze, 1833.

[‡‡] Transactions of College of Physicians, Vol. i. p. 398. Collins, Practical Treatise, p. 346.

[§§] A Practical Treatise on Midwifery, p. 342.

[||||] Dublin Hospital Reports, Vol. v. p. 572.

[¶¶] Ibid. Vol. v. p. 494.

[***] Edinburgh Medical and Surgical Journal, No. 117 p. 295.

[†††] Dublin Journal, Vol. v. p. 367.

In the Western Lying-in Hospital, 31 Arran Quay, Dublin, between November 1, 1835, and December 31, 1837, there were 616 women delivered, and two cases of prolapsed funis. Both children were lost.

Dr Beatty reports,* that six cases of prolapse out of 1182 labours occurred at the new Lying-in Hospital, between April 1834 and August 31st 1837. Four of the children were lost.

If we add these together, they amount to 90,983 deliveries, and 322 cases of prolapse of the cord or in every 282½.

It must always be remembered, when speaking of the results to the child of this accident, that in lying-in hospitals, many of the cases do not seek admission till some time after the occurrence, when the chance of a safe delivery is diminished, and some not until the cord has ceased to pulsate. Twenty-two such cases occurred out of the 73 unfavourable ones Dr Collins has recorded.†

Many circumstances have been assigned as likely to cause or to favour the occurrence of this complication.

1. Malposition of the child. Smellie in his plate of this accident has represented the child lying across the uterus, with the umbilicus at the upper outlet, and the cord hanging down in the cavity of the pelvis; and Froriep regards this as an exact explanation. After a careful examination of the cases I have seen, and a tolerably extensive investigation into those recorded by authors, I can find no facts at all in support of this view, and must therefore attribute the explanation rather to Smellie's ingenuity than to his experience.

2. It would appear that a small child, with a large quantity of the *liquor amnii*, by allowing the head of the fœtus to move away from the brim of the pelvis during the latter months, will favour the escape of a loop of the funis. (Boer, Mauriceau.) ‡

3. The sudden twisting of the membranes, and the forcible rush of a large quantity of *liquor amnii* may have a similar effect, and especially when aided by an untoward position in the mother. (Bocr, Busch, Capuron, Baudelocque, Gardien.) §

4. It will be favoured by a presentation of the feet or knees, as they do not fill up the upper outlet, (Naegele,) ‖ and even where the cord does not descend at the commencement of labour, it may before the breach enters the pelvis. Naegele is not correct, however, in stating that it occurs most frequently with footling cases.

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* Dublin Journal, Vol. viii. p. 66, Vol. xii. p. 273.

† Practical Treatise, p. 346.

‡ Von Geburten unter welchen die Nabelschnur vorfallt, in L. J. Boer's Works, Vol. ii. p. 156.

§ Traité des Accouchemens, Vol. ii. p. 414.

‖ Lehrbuch der Geburtshülfe, p. 283.

5. Naegele adds, irregular shape or irregular action of the uterus.

6. Excessive length of cord forms undoubtedly an important element; but it requires other conditions also, since in the cases of the cords of from 36 to 54 inches which I have noticed, no prolapse occurred.[*]

7. I may add from my own observation, that I have found in several cases of prolapse, that the placenta was situated low down on the side of the uterus, and in some few others, that the funis was inserted into the lower edge of the placenta.

There are cases, however, which are not traceable to any of these causes.

In all cases of prolapsed funis, the child is in the utmost danger from the moment the upper strait of the pelvis is filled by the part of the child descending, in consequence of the pressure upon the cord, just as in footling cases. The effects of this pressure are in proportion to the time it is continued, if the cord be not partially shielded from it by its situation. Several explanations of the proximate cause of death have been given (Gardien, Velpeau, &c.); but as they are only hypotheses, I shall omit them.

There are but few cases in which the child escapes safely when the labour is left to the natural powers. In those in which I have seen this happy result, the pelvis was very large, the child of a moderate size, and the pains very violent, so that the second stage of labour occupied but a very short space of time. The same result will obtain in those cases where the cord is shielded from pressure, by being lodged in the angle at the junction of the sacrum and ileum. (Busch.) The chances will be still greater, if the patient has borne previously five or six children.

Treatment.—The means to be adopted will depend entirely upon the state of the prolapsed cord. Should it exhibit marks of putrefaction, or be without pulsation, it will be useless to interfere because hopeless, as regards the life of the infant, and the labour may be allowed to terminate naturally.[*] Capuron [†] advises us not to interfere at once, even though the cord should pulsate, but rather to wait until the pulsations become feeble. It will certainly be desirable that the *os uteri* should be as much dilated as possible; and if we discover the prolapsed cord before the rupture of the membranes, it will be well to postpone their rupture until that object be effected.

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[*] It might not unfairly be asked, says Naegele, why prolapse of the cord does not always take place, since the length is sufficient, and its specific gravity greater than the *liquor amnii*. He explains it by referring to the fact, that when the membranes first give way, only that portion of the *liquor amnii* which is anterior to the head, escapes, whilst the larger portion and the cord are retained by the tight fitting of the head in the upper strait. (Handbuch der Geburtshulfe, p. 104, 285.)

[†] On this point Dr Collins remarks, "From such (the opinions of Denman and Burns) I most respectfully differ, as I cannot see any advantage whatever, in permitting the patient to endure the pain and distress of labour for hour after hour, which must be accompanied with some risk, when by lessening the head, we can, without the least injury, terminate the labour." Practical Treatise, p. 350.

[†] Cours d'Accouchemens, p. 335.

Various modes of management have been proposed.

1. We are advised to push the cord upwards, beyond the brim of the pelvis, and there to retain it with one or two fingers, until the upper outlet be filled by the descending head.

This would seem easy and certain, but in practice it is not so; for the pains which force down the head, force down the cord also, and, besides, there is some risk of displacing the head. This reposition is still more difficult, if any other part than the head present. On the whole, I believe I may say that it rarely succeeds.

2. It has been proposed to return the cord and to hook it over the limbs of the child. This might also succeed, but it is a very difficult and a somewhat dangerous operation, and I am inclined to agree with Dr Burns, that "if the hand is to be introduced so far, it is better at once to turn the child."[*] It is but right to add, that Sir R. Croft succeeded twice in this way.[†]

3. Various mechanical expedients have been contrived for retaining the cord when replaced. Thus inclosing the cord in a leather bag and pushing it beyond the head of the child, was recommended by Mackenzie,[‡]—attaching the cord to the extremity of a canula by Ducamp, of a catheter by Dudan,[§] the reductor by Aitken, a thin elastic flat rod of steel by D. Davis,[||] or a modification of some of these contrivances was suggested by Champion, Favereau, and Guillon.)[¶]

4. Osiander, Busch, Hogben,[**] and Hopkins[††] propose to retain the cord by introducing a piece of sponge after its replacement.

5. Dr S. Merriman has twice succeeded in saving the infant, not by returning the cord, but by placing it in the angle formed by the junction of the sacrum and ileum, where it is in a great measure shielded from pressure.

6. If we determine to try the preceding plan, or if the advance of the head preclude any attempt at reposition, or, lastly, if the cord come down during labour, we may increase the chances of safety by applying the forceps, and hastening delivery as soon as the head is within reach. (Merriman, Busch,[‡‡] Boivin.)

7. If the patient have had children before, and if the pelvis be roomy and the soft parts well dilated, perhaps the best chance for the child is in turning, (Boer, Burns,) particularly, of course, if there should be a mal-presentation. (Boivin.)[§§]

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[*] Principles of Midwifery, p. 433.

[†] Merriman's Synopsis, p. 99.

[‡] Merriman, p. 99.

[§] Revue Med. 1928, Vol. iii. p. 502.

[||] Elements of Operative Midwifery, 1825, p. 170.

[¶] Velpeau, Traitè des Accouchm. p. 342. Ed. Brux.

[**] Obstetric Studies, 1813, p. 62.

[††] Accouch. Vade Mecum, 1814, p. 193.

[‡‡] Siebold's Journal, Vol. xvi. part 1, p. 200.

[§§] Memorial, p. 226.

But as this operation is not without hazard to the mother, we should accurately estimate the favourable or unfavourable probabilities as regards the child before we attempt it.

Mad. Boivin turned the child in 25 cases, and used the forceps in 13 out of the 38 cases she has recorded; and saved 29 children. Mad. Lachapelle in 23 cases used the forceps 13 times and version 10; 17 children were saved.

As far as I can learn, all these were head presentations.

In one case Dr Collins saved the child by returning the cord and retaining it by the hand in the vagina; in another by enclosing it in a linen bag, and retaining it in there by introducing a piece of sponge.

No matter what means are adopted, the mortality, especially in hospital practice, will be very considerable; thus out of 244 of the cases I have referred to, 152 were lost and 90 saved.

Should the delivery have been completed within a short time after the cord has ceased to pulsate, it will be our duty to employ for some time the usual means for resuscitating the child; so long as the heart beats ever so faintly, there is hope.

So much for the influence of the cord upon parturition.

After the birth of the child, the pulsation in the arteries continues for twelve or fifteen minutes, gradually diminishing in strength as respiration becomes more perfect, until at length it ceases entirely. It is not customary in Great Britain to wait for its cessation, but as soon as respiration is sufficiently established, one or two ligatures are put upon the cord and it is divided.

On the continent, however, a different practice prevails. Many writers object to ligatures altogether, on the ground that they may lead to local congestion, or otherwise injure the child, and that they are perfectly unnecessary for the purpose of restraining hemorrhage, (Capuron);[*] and we are referred to the habits of animals in proof of this latter assertion.

That the cord may be left without a ligature, and yet no hemorrhage follow, we have the express testimony of Capuron and others; and I recollect seeing several cases delivered under M. Capuron's superintendence, in which this practice was adopted without inconvenience. But, on the other hand, every practitioner must have met with instances of alarming hemorrhage in consequence of the ligature becoming loose, and as this is the case, it would be extremely rash to incur the risk when the prevention is so easy. I totally disagree in the danger attributed to the ligature, except in those cases in which congestion (from tedious labour, &c.) exists at birth, and then, before applying the ligature, it is always wise to allow a small quantity of blood to escape. As to the lesson supposed to be taught by animals, Dr L. J. Boer[*] has well observed that the circumstances are totally different,—that a sufficient time is allowed to elapse between the birth of the young animal and its separation from the after-birth,—that the separation is generally effected at a distance from the umbilicus,—and that the cord is exposed to the cold air, &c.—and Dr William Hunter's observations give the *coup de grace* to this hazardous practice. " A ligature upon the navel string," the Doctor remarks in his manuscript lectures 1752, " is absolutely necessary, otherwise the child will bleed to death ; and when tied slovenly, or not properly, it will sometimes bleed to an alarming quantity. As we are to take such vast care to secure the navel string, you will naturally ask,—how brutes manage in this particular? I will give you an idea of their method of procedure by describing what I saw in a little bitch of Dr Douglas's. The pains came on, the membranes were protruded: in a pain or two more they burst, and the puppy followed. You cannot imagine with what eagerness the mother lapped up the waters, and then taking hold of the membrane with her teeth, drew out the secundines ; these she devoured also, licking the little puppy as dry as she could. As soon as she had done, I took it up, and saw the navel string much bruised and lacerated. However, a second labour coming on, I watched more narrowly, and as soon as the little creature was come into the world, I cut the navel string, and the arteries immediately spouted out profusely: fearing the poor thing would die, I held it to its mother, who drawing it several times through her mouth, bruised and lacerated it, after which it bled no more. This, I make no doubt, is the practice of other animals."[†]

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[*] "Quant à la ligature du cordon qui tient au fœtus, la raison physiologique et l'experience s'accordent à en prouver non-seulement l'inutilitè, lorsque la respiration est bien etablie, mais encore le danger, lorsque l'enfant est menacé d'apoplexie. S'il est donc essentiel alors de couper le cordon ombilical aussitot que l'enfant est né, rien ne presse d'en faire la ligature. On pourrait même absolument s'en dispenser dans la suite, si l'on n'avait à craindre qu'un maillot trop serré ou des cris aigus ne vinrent à suspendre la respiration, et à faire jaillir le sang par les extrémités des arteres ombilicales."—Cours des Accouchemens, p. 246.

The ligature is to be applied about two inches from the body of the child and drawn very tight. An examination should be made before it is finally covered up, to see if there be any draining, as the escape of the gelatine often slackens the ligature, and if necessary another should be applied nearer to the abdomen.

It is customary in these countries to tie the cord a second time nearer the placenta, with a view to prevent hemorrhage, in case there should be a second child, and a vascular communication between the placenta. It is a matter of precaution, not of necessity. It is said by some French authors, that allowing the cord to bleed facilitates the expulsion of the placenta. I am not prepared to speak decidedly on this point, but I know that it weakens the cord, and unfits it for much traction.

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[*] Bemerkungen ueber das unterbindung der Nabelschnur in the second Vol. p. 148 of his work, " Natürliche Geburtshülfe und Behandlung, &c." See also Froriep's Handbuch der Geburtshülfe, p. 360.

[†] Merriman's Synopsis, p. 21, note.

As to the portion of cord that remains attached to the abdomen of the infant, it speedily dies, and gradually dries up and drops off. I have kept an account of the period of its decadence in 49 cases, and it occurred as follows:

In 1 case it fell on the 2d day.
1 . 3d.
7 cases, . 4th.
20 . 5th.
10 . 6th.
2 . 7th.
3 . 8th.
3 . 9th. Thus the 5th and 6th days are the ordinary periods of its attachment.

My friend, Dr Montgomery, informs me that he has had one persistent until the fifteenth day, and Dr Brem has seen one at the thirteenth day.

When it falls, the umbilicus requires to be protected from friction by a pad of soft rag, smeared with a little simple ointment or cold cream, otherwise it may be attacked by inflammation and swelling, and severe ulceration (Naegelè). This, however, is easily subdued by emollient or very slightly stimulating applications.

A much more serious matter is the occurrence of hemorrhage, from the cord having been separated or pulled away before the vessels are completely closed. It is extremely difficult to stop the bleeding, and sometimes impossible, without cutting down upon the bleeding artery and tying it; a most undesirable operation in a young infant. As a striking example of this accident, I shall quote a case related by George Pout, Esq. Market Street, Beds, and with that conclude this paper.

"On the 4th of September 1831, I was sent for early in the morning by a lady of the name of White, requesting my immediate attendance, as her child had been bleeding all night from the navel. On my arrival I found, from the state of the linen, the hemorrhage must have been very considerable, and I endeavoured to ascertain the cause, by introducing a pair of dressing forceps within the navel, as far as possible, and then opening them, to stretch the integuments, but, not being able to see from whence the blood came, I plugged up the opening with lint, &c. and used pressure by means of adhesive plaster and a roller."

In spite of the most judicious treatment, the child died, "having bled to death, as the linen clearly proved. This was a full healthy male child, about ten days old. The funis came off as usual, and without the slightest appearance of any thing more than common, on the sixth day. The bleeding commenced on the eighth day, and continued till death. What renders this case most remarkable is, that this lady had lost two children before, under exactly similar circumstances. Upon dissection after death. I found the umbilical vein full of blood, in a fluid state, and nearly as large as a goose quill. Both the umbilical arteries were sufficiently pervious to admit a probe, and the left still containing a plug of coagulated blood, from which it would seem the bleeding took place. They were both so much retracted within the integuments, that it must have been impossible to have stopped the bleeding by pressure." *

In any similar case, Mr P. proposes to cut down upon the artery, and to tie it. The actual cautery has also been proposed, and might be successful; but it has struck me that if the navel were stretched open, and filled with plaster of Paris, either in powder or moist, it might effectually plug the vessels, as it would become solid, and adherent to the skin. I do not know whether this has been tried, but it seems worth the experiment.

I fear that these intractable cases are more frequent than one would suppose. A young friend has just informed me that he has met two such, which continued to bleed, in spite of all attempts to plug the navel, and which finally proved fatal.

104, *Stephen's Green*, *Dublin*.
June 20, 1838.

Art. II.—*Analytical Essay on Irregular and Aggravated forms of Hysteria.* By Thomas Laycock, House-Surgeon to the York County Hospital. (Continued from page 66.)

In the last Volume of this Journal (xlix.) I gave a selection of cases, comprising, with one or two unimportant exceptions, every form of those diseases usually called hysterical, with a view to an inquiry into their nature and causes. At page 24 of this Volume I commenced an inductive analysis of their phenomena, by establishing three general principles as applicable to every case. These were, 1. That the nervous system is principally implicated in these affections; 2. That it is, with certain exceptions, the nervous system of females only which is so implicated; and, 3. That these affections are observed only in females, at a time when the sexual organs are performing their peculiar functions. Commencing with the third or least general head, I attempted a synthetical arrangement of the symptoms, in connection with the organs of generation and their functions. It would be observed, that I was obliged in my former paper to anticipate various remarks which ought to have been made under the second head. These I shall not repeat here, but merely state the conclusion at which I arrived, namely, that the well-known susceptibility of the female, and her peculiarities of corporeal organization, do not depend solely upon the generative organs, but originate in some higher law of developement, which involve the latter organs in common with the whole system.

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* Medico-Chirurgical Transactions, Vol. xii. p. 183.

By universal consent, the nervous system of the female is allowed to be sooner affected by all stimuli, whether corporeal or mental, than that of the male. As this state of the system is the source of the weaknesses, so also it is the origin of all the physical and psychical beauties of the female. If we search for a clue of inquiry into its nature among the laws of developement, we shall find nothing sufficiently tangible or certain for the purpose. Pathology, however, in the hemorrhagic diathesis of the hysterical, points out an available starting point in the vascular system. In all females during the menstrual nisus, when there is an exalted affectibility of the whole system through the influence of the ovaries, we find the blood-vessels of the uterus to assume a state analogous to that of the vascular system in hemorrhagic hysteria, and to pour out the colouring matter of the blood, together with the proper uterine secretion. So that the menstrual secretion may be considered as the type of hysterical hemorrhage. The monthly flow of blood from the urethra and rectum of some males is probably somewhat analogous. These cases do not appear very uncommon, and clearly indicate a periodical movement in the structures connected with the lumbo-sacral portion of the cord in the male.

But the law of developement to which I have referred has some influence on the anatomical and vital constitution of the whole vascular system in both men and women. This is clearly shown by that curious form of disease in which there is a hemorrhagic diathesis, which is hereditary in certain families, and peculiar to the males. From instances recorded by various writers in various parts of the world, it appears that the individuals having this hemorrhagic constitution may bleed to death from the slightest solutions of continuity, as the puncture of a pin, or of the vaccinating lancet, or any trifling injury of the surface; and that the females of those families in which it is observed are (with two exceptions mentioned by Dr Elsässer *) invariably exempt. Their male offspring, however, will certainly possess the fatal diathesis, while their female children, like themselves, will escape.

With these facts before us, it is impossible to avoid the conclusion, that the same condition of the system which determines the sex of the embryo, determines also the hemorrhagic constitution of the male, and prevents its developement in the female; and, also, as a corollary, that the condition which determines the sex, influence in some way unknown the vascular system. It does not appear that there is any resemblance between the accompanying phenomena of the hemorrhage of these individuals, and those of the hysterical. They agree only in the leading symptoms, and in this, that both kinds may be classed under two heads, as they present the phenomena of purpura, or an increased activity of the vascular system.†

The organs from which the hemorrhages in hysteria occur, suffer with a frequency corresponding to the intimacy of their connection with the ovaries. Hemorrhage from the uterus is the most frequent of all; next from parts about the larynx and fauces; then most frequently (in the order in which they are mentioned) from the mammæ, ears, stomach, lachrymal gland, surface of the neck, ulcers, especially of the legs, kidneys, intestines, surface of the extremities, especially of the hands and feet; and lastly from the epigastrium. These hemorrhages must be distinguished from vicarious menstruation; although they certainly occur most frequently at the menstrual period, as *a priori* might be expected. Vicarious menstruation occurs also from organs in the order abovementioned. Of 29 well-marked cases I have collected, it occurred in 7 from the eyelids or eyes; in 1 from the eyes and ears; in 1 from the nose; in 6 from the mammæ; from the skin and upper extremities in 5; from the stomach in 3; from the umbilicus in 2; from the rectum in 2; and from the feet in 5 cases.

The ratio in which the various constituents of the blood enter into its composition is worthy of notice, as having an intimate relation with the affectibility, natural or morbid, which I have mentioned as peculiar to the female. In a great proportion of the cases of hemorrhagic hysteria, the blood had a loose crasis, arising apparently from a deficiency of fibrin. And in those cases in which this particular phenomenon is not mentioned, we may very fairly infer from the details that the blood had this defect. Blood-letting will of itself produce this condition. Prevost and Dumas having bled a cat largely, found 1000 parts of its blood to consist of 791 of water, 87 of albumen, and 118 of globules. Two minutes afterwards they repeated the bleeding, and found the water increased, and the solid particles diminished in quantity, and after an interval of five minutes, the bleeding was repeated for the third time, and they found the blood to consist of 829 parts of water, 93 of solid particles, and 77 of albumen. M. Le Canu obtained similar results from the analysis of human blood taken from patients who had been bled to a large amount, or were labouring under hemorrhagic affections.[*] These experiments are important when connected with the pathological phenomena of hysteria and of excessive depletion. It is not a little curious in connection with this subject that, according to Le Canu, who made an extraordinary number of observations, the blood of women in general contains more water and less crassamentum than that of men. Le Canu found the quantity of water in 1000 parts of the blood of females to vary from 790.394 to 853; of males from 778.625 to 805.26.[†] Denis examined the blood of 24 men and 28 women; and the mean result of his experiments was, that the proportion of water in the blood of males and females is as 767 to 787. He found also a greater proportion of water in the blood of aged persons and children.[‡] According to Le Canu, the blood of men contains in 1000 parts, about 3298 more of the components of the crassamentum than that of women. In the blood of the latter during menstruation, he found the blood to contain less clot.[§] If these observations were extended so as to comprise an analysis of the blood of females constantly exposed to the open air, and in robust health, with the same results, they would go far towards elucidating some obscure points in the characteristics of the sexes. At present, however, we can only infer that the blood of females living in towns (for such I presume was the subject of Le Canu's researches) presents these peculiarities, and that the blood of females in general is more easily affected by the depressing agencies experienced in crowded societies.

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* Hufeland's Journal, February and September 1824. In these exceptions there was a tendency to ecchymosis during youth only.

† Those who may wish to investigate this curious subject will find the following list of references to cases and monographs more complete than any yet given. Edin. Med. and Surg. Journal, xix. xxv. xxvi. xxxii. xxxvi.—Lond. Med. and Phys. Journal, xx. xl. lx.—New Lond. Med. and Phys. Journal, vii.—Dublin Journal of Medical Science, vii.; and Mr Wardrop's work on Blood-Letting.—Horn's Arch. für Medicin Erfahr. 1820, Vol. i. contains a paper by Nasse, with bibliographical references, which may be found in Vol. xxv. of this Journal. To these may be added, Rust's Magasin, xxvii. B. ii. 1828.—Zeitschrift fur Nat. und Heilk. v. B. ii.—Archiv. Gén. de Med. Ser. ii. Tom. xiv., and Ser. iii. Tom. i. 1838.—Suisse Gaz. Med. 1838, No. iii.—Ripp, Untersuchungen in Betreff. der Anlagen zu todtl. blutungen, Frankfurt, 1835.—Schonlein, Allgemeinen und Specielle Pathol. und Therapie, Vol. ii.—Nachricht von Zwei Blutern Mitgetheilt, von Doctor Schreyer, zu Vegtsberg un Sachs. Vogtlande.

But even in this limited view of the subject, the connection between the affectibility of the females, and deficiency of crassametum or fibrin in the blood, is farther illustrated by the exceptions to one of the general principles I laid down at the commencement of this analysis, namely, that hysterical affections are peculiar to females. Hysteria most unquestionably occurs in the male. Louyer-Villermay,[*] and those authors who locate the disease in the uterus, necessarily deny this, for as young men have no uterus, they cannot possibly, according to their theory, have true hysteria. The affirmative is asserted, however, by many observers. Piso, Willis, Sydenham, Boerhaave, Cullen, Ferriar, Mackintosh, Johnson (of the Med. Chir. Review,) Conolly, Brodie, M. Hall, and many others have observed hysteria in males.[†] I think I have seen three cases in the hospital, the symptoms of which, if they had been observed in females, would certainly have entitled their history to a place in my collection. The first was that of a small delicate youth, aged 14. He had paroxysms of violent palpitation and dyspnœa occurring regularly every night for two or three weeks together. To these were occasionally added spectral illusions, delirium amounting sometimes to furious mania, cephalæa, diminished secretion of urine, pain in the loins, constipation, and particularly, as an almost diagnostic symptom,—an unconquerable dislike of animal food, especially of beef or mutton, the smallest portion of which would make him vomit. He recovered as he approached puberty.[‡] The other two cases were those of fat, pale-faced, effeminate-looking men. In the one, the affection was attributed to malaria, and he had flabby wasted testicles, with very scanty secretion of urine, globus, borborygmi, colic, and paralytic affection of the arm.

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[*] Cyclopædia of Anatomy and Physiology, i. 413.

[†] Muller's Physiology by Baly, p. 119. [‡] Ibid.

[§] Ibid. The whole of M. Le Canu's researches may be found in "Etudes chimiques sur le Sang humain. Thèse présentée et soutenue à la Faculté de Médecine de Paris, le 23 Nov. 1837, par Louis-René Le Canu, 4to, Paris, 1837.

Epileptiform hysteria and epilepsy not unfrequently occur in the male at hebdomadal periods, or multiples of them, just as lunacy. These and the other varied forms of hysteria may occur in males from various causes, such as a feminine general system; depletion about puberty; malaria; in short, from any of the causes which engender or increase the affectibility of the human female. But the most fruitful sources of hysteria and hypochondriasis are those agents which act injuriously on the blood, as well as on the nervous system. Diseases of mucous membranes, want of muscular exercise and due exposure to the atmosphere; improper food; vicious habits implicating the generative organs and debilitating the system; and excitement of the brain and nervous system in general, however originating. These causes of hysteria are referred to by every writer on the subject. All operate, probably, by reducing the blood to a state very similar to that of the hysterical female. Analogous to the effects of these, are the changes produced on the blood during spasmodic diseases, as tetanus and epileptic convulsions; by certain mineral poisons, as arsenic; by animal poisons, as in rabies and the bites of venomous reptiles, and by acro-narcotic vegetable poisons, as opium, strychnine, brucia, &c.; and we shall, subsequently, find how great is the resemblance of the phenomena of hysteria to the symptoms which these poisons excite in the system.

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[*] Dict. des Sc. Med. Tom. xxiii. p. 230.

[†] Cases may be found under the following references: Edin. Essays and Obs. i. 222. Ferriar, Med. Hist. and Reflect. i. 128. Edin. Med. and Surg. Jour. ii. 309. Med. Chir. Review, New Series, vii. 412, xviii. 207, (from Revue Med. 1832,) and xxiii. 63, all well-marked cases. Dr Conolly, Cycl. of Pract. Med. ii. 565, Dr Robertson, Med. Gaz. xv. 460. Dr Crawford, suffered in his own person a paroxysm of epileptiform hysteria, Cyc. Pract. Med. i. 469. Other cases are mentioned by most systematic writers.

[‡] I learn that he has had a relapse since he entered a shop at Leeds as an apprentice.

Without, however, anticipating the last-mentioned class of facts, we may conclude, from the preceding general observations, that a loose crasis of the blood, a deficient clot, or some other morbid change, is concurrent with the affectibility of the human female, and almost invariably accompanies the more aggravated forms of hysteria; and this conclusion is strengthened by the following general facts drawn from the whole series of cases.

1. Profuse hemorrhages, or other depressing accidents occurring to the female about puberty, usually excite the most obstinate forms of hysteria.

2. Repeated remedial bleedings, whether by leeches or from the arm, however much they may relieve the symptoms at the moment, ultimately induce the same form of the affection as profuse hemorrhage.

3. Profuse hemorrhages and remedial bleedings will of themselves induce hemorrhagic hysteria; the most aggravated form of the disease.

4. Moderate exercise in the open air, good plain food, and tonics; in short, all those remedial agents which tend to restore the blood to its healthy condition are the best remedies.

I think every practitioner who has witnessed cases of this kind will acknowledge at once the justness of these conclusions. If they be just, I think no one will venture to take blood from the pale delicately-tinted finely-formed female, without considering that the corpulence may be hysterical; the excited pulse, intense cephalæa, and sanguineous sputa are the symptoms of exhaustion; the torpid bladder and bowels, only symptoms of paralysis; and the greatly exalted sensibility of every organ, the result of debility. One bleeding of a highly hysterical female will not be repaired in weeks, and will perhaps induce months of suffering.

I would not have ventured upon these remarks, had not my own short experience painfully convinced me how easy it is to do with the lancet that harm, which prolonged anxious attention will scarcely repair. I have, therefore, resolved to err on the safe side, and not to bleed a female such as I have described, however much the symptoms may resemble those of inflammation, unless there be some cause so palpably obvious as to leave no doubt whatever of the nature of the case.

Before dismissing this part of the inquiry, I would remark, that, so far as I have observed, chlorotic or anæmious females are rarely hysterical. It must be observed, however, that in these there is little evidence of sexual developement. The individual grows rapidly, but there is scarcely any action in the skin; the mammæ are seldom raised more than an inch above the surrounding parts; and there is no embonpoint, nor uterine secretion. When the generative organs are well-developed, and the blood contains a diminished quantity of colouring matter, we may expect hysteria to appear with great confidence. But it must not be forgotten that there are females whose blood apparently contains an abundance, and who have a vigorous sexual system, but suffer very usually from the common forms of the disease. It is in such that every venesection produces some new or more intense symptom, until the depletion being carried beyond a certain point, the surface assumes a waxy paleness, and coma or catalepsy supervene. It is not improbable, that, in instances of this description, the congested hue of the surface, especially of the face, from which it is inferred that colouring matter abounds, may be only a symptom of that determination to the skin which obviously occurs in many cases of hysteria.

There is some obscure connection between the functions of the spleen, and the amount of colouring matter in the blood. Pain in the left hypochondrium is a frequent symptom in chlorosis and hysteria. Extreme paleness of the surface is almost diagnostic of disease of the spleen; and the same appearance constantly accompanies the enlarged spleen consequent upon agues. Müller thinks the spleen contributes to the process of sanguification, by secreting lymph of a peculiar nature, the office of which is to perfect the formation of chyle.* M. Arthaud imagined that he could show by experiment, and by facts from comparative anatomy, that the spleen is nothing more than an electric apparatus, by the agency of which the blood undergoes some modification.† M. Strauz, from some microscopical observations upon the texture of the spleen of the elephant, concluded it was a plexus dependent upon the ganglionic system of nerves.‡ Again, those substances which especially stimulate the nervous system, and to which I have already alluded as altering the composition of the blood, act particularly upon the spleen. Arthaud asserts it is always tumefied by their presence;* but, Defermon says, it becomes smaller under the influence of camphor, strychnia, and muriate of morphia.† The most interesting fact, if verified, is that stated by Arthaud, who states that in true acephalous cases, the disappearance of the spleen is a constant occurrence.‡ In short, it appears that the spleen is influenced by the state of the blood, and by the nervous system.

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* Physiology by Baly, p. 571.

† Jour. der Progres, 1827. London Medical Gazette, i. 454. ‡ Ibid.

In concluding these very general remarks on the affectibility of the human female, I would observe that I do not wish to be understood as advocating the doctrine, that it is the natural state; although I believe it is. It may result equally as the condition of the blood before noticed, from the sedentary occupations and repressed feelings to which the sex in all civilized communities is liable. I simply contend for its existence; it may be compatible with general good health in females; but in males it is a morbid state; the source of hypochondriasis, and the result of causes which depress the assimilating powers, or excite unequally the nervous system. Those causes which originate it in the male, will exalt it in the female; and we have then the morbid sensibility which forms so prominent a symptom in every case. The great demand made at puberty upon the assimilating organs to which the supply is unequal, and the rapid evolution of the nervous system, whether as subservient to the function of generation or to mind, are manifestly agencies of a depressing character. At that period, the influence of the sexual system is unquestionably predominant; and hence the symptoms enumerated in the first part of the analysis.

The third section of the analysis comprises a consideration of the phenomena of hysteria in their relation to those of the nervous system in general. It cannot be expected that I shall enter minutely into the details of so extensive a field of inquiry. I shall therefore select the more prominent points only in the anatomy, physiology, and pathology of the nervous system, as means of illustration, and rather sketch general outlines, than draw a finished picture. The whole of the phenomena are naturally divided into two great divisions, as they are mental or corporeal. I shall commence with the latter as being least complicated. The plan I intend to follow is very simple. I shall mark it out with reference to the previous sections; so arranging the subject, that, by a higher induction, we may be led to some more definite knowledge respecting the true nature and seat of these affections, but avoiding as much as possible all controverted points.

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* Loc. cit. † Nouveau Biblioth. Med. Mars 1824. ‡ Loco citato.

We must, consequently, review the whole of our previous steps, and deduce some general principles which may serve as the basis of a new synthetical arrangement, and comprehend the two divisions over which we have already passed. First, then, while we learn from the series of cases that the whole nervous system is affected, we find from the first section, that that part of the nervous system subservient to the functions of generation is more especially implicated, and, pushing our inquiry a little farther, we ascertain that, with certain exceptions, as the skin, the nerves of the organs affected have a close anatomical relation with the superior and inferior extremities of the spinal cord. By the superior extremity I mean that intra-cranial portion of the spinal cord, the *medulla oblongata* and its prolongations, from which all the intra-cranial nerves arise ; by the inferior extremity I mean that part in connection with the genito-urinary organs ; the large intestines to their termination ; and the abdominal muscles and lower extremities. The motor nerves of the eyes, face, and neck,—the stomach and thoracic viscera and their appendages,—indeed, all the parts supplied by the class of nerves termed respiratory, are necessarily inconnection with the *medulla oblongata.* This division of the symptoms, as they refer to parts in anatomical relation with the two ends of the spinal cord, is by no means new or fanciful. It is simply a higher generalization, and nothing more than the removal of the seat of the φρην of the ancients, (the *archæus* of Van Helmont) from the epigastric region to the *medulla oblongata* ; and of the seat of the θυμος, or principle of vegetative life, from the abdominal viscera to the dorso-lumbar portion of the cord. The third or highest principle of the ancients, the νοος or soul, is left in undisturbed possession of the cerebrum, where it was located by philosophers about 3000 years ago. This principle, upon which I propose to group the phenomena about to be noticed, has other claims to notice than its logical utility. The metastasis, to which I have more than once alluded, is particularly obvious, when the phenomena of a case of aggravated hysteria are thus grouped. Those implicating the pelvic viscera will occasionally disappear, and vomiting, dyspnœa, cough, palpitation, and cephalæa supervene ; to disappear in their turn at the menstrual, or an hebdomadal period, with a completeness altogether surprising ; and be succeeded by menorrhagia, diarrhœa, ischuria, constipation, vesical paralysis, and neuralgic pains of the abdomen and lower extremities, or some other of the symptoms before-mentioned. I have recently observed this metastasis so clearly and unequivocally in two cases that I cannot doubt other practitioners will notice it also if they direct their attention to the phenomena as thus grouped.

Independently of this pathological relation of the two extremities of the spinal cord, there is a law of sexual developement in which they exhibit apparently a kind of antagonism. The greater size of the neck and thorax not only in man, but the males of other animals, as the bull, boar, stag, and dog, and their comparatively small lumbar region, while exactly the converse occurs in females, as well as other analogous changes in the tegumentary appendages, namely, the beard, mane, tusks, horns, and feathers, deserve especial attention. They all illustrate this principle, and it will be further elucidated as I proceed.[*] The synthetical principle which may be deduced from the second section is, that the composition of the blood is altered in hysterical affections; and since these latter resemble the convulsive and other affections of the nervous system in general, it may be added as a corollary, that in these last there is a morbid condition of the blood also. This corollary, however, is principally applicable to those convulsive diseases which are excited by the presence of poisons in the circulating fluid.

Having premised these general considerations, I shall merely state the order in which I shall proceed. 1. The resemblance between the state of the blood and condition of the nervous system of females and children induces me to review infantile diseases in general. 2. The frequency with which mental emotions give rise to hysteria, and their well-known action on the blood, require that their general effects on the system should be noticed. 3. Review the consequences of blood-letting. 4. The results of poisoning, so far as they bear upon our subject. 5. The symptoms of those nervous diseases which have a similar relation; and 6. The phenomena of some anomalous affections.

From this arrangement I shall occasionally deviate, when by so doing I can economize space, or more clearly elucidate the subject.

It is universally acknowledged that the affectibility of the female sex has its counterpart in that of children. This is proved by that facile excitement of mental emotions and convulsive movements which is common to both. That this excitability is not dependent upon the *cerebrum* would appear from the fact, that in early infancy, when the proneness to convulsive movements is best marked, we observe only the simplest mental phenomena, and those only which are common to the lower animals. That, previously to puberty, the cerebrum is in a condition differing from that which is observed after puberty, is further evident from the impulse given to the intellectual organs on the accession of that period. The difference is still more obvious, when we consider the effects of injuries done to the brain before and after it. While these are among the most fatal accidents which can happen to the adult, in children their consequences are not more serious than those which would follow an injury of corresponding severity done to any other part of the body. This circumstance cannot have altogether escaped the notice of systematic writers. Sir B. Brodie, however, is the only one I have met with who makes any allusion to it. He remarks,[*] that the proportion of recoveries from wounds of the brain is especially small in adult patients. I have noticed the fact repeatedly. For better satisfaction, I collected from various publications,[†] 81 cases of injury of the brain, with a special reference to the proportion of recoveries at various ages. The following is the result.

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[*] Since writing the above, I have met with the following remark by Cabanis. "Dans son traité du corps muqueux, Bordeu rappelant la doctrine des anciens, touchant les deux grandes divisions du corps de l'homme, en gauche et droite d'une parte; et en supérieure et inférieure de l'autre; doctrine que la pratique de la médecine confirme chaque jour, mais qui les mécaniciens modernes rejetaient, parcequ'elle ne paraissait pas appuyée sur l'anatomie: Bordeu, dis-je, a fait voir que les grandes distributions du tissu cellulaire se rapportent, en plusieurs points, à cette division qu'avait fournis aux anciens la simple observation des phenomènes vitaux," &c. Rapports du Phys. &c. ii. 411. I am unacquainted with the ancient authors referred to by Bordeu.

	Whole number.	Recovered.	Died.
Patients under 10 years of age, -	8	6	2
Do. between the ages of 10 and 16 inclusive,	24	18	6
Do. between 16 and 21 inclusive, -	8	7	1
Adults of all ages above 21 years, -	41	14	27
Total,	81	45	36

I have no doubt this table will be in accordance with the observations of every experienced practitioner. These various circumstances tend to show, that in children the feelings and passions are not dependent on the full action of the *cerebrum*. The sphere of investigation might be much extended, by including an inquiry into the relations of the passions to the *cerebrum* in idiots and the lower animals. If we examine the convulsive diseases of children, the earliest is trismus, occurring generally within the first nine days after birth. The history is very scanty; I shall therefore pass it over. The next series of convulsions are those accompanying the evolution of the teeth,—organs in connection with the cranial end of the cord. The proximate cause of these convulsions has been attributed to irritation or compression[‡] of the dental branches of the fifth nerve, by the walls of the unyielding bony socket of the teeth during the growth of the latter. Some change must also occur in the central ends of the nerves, by virtue of which the process of dentition is commenced and carried on. The latter, as a part of the evolution of the whole system, is well calculated to form a starting point, because it represents with tolerable accuracy the progressive evolution of the mucous, muscular, osseous, and nervous systems, which are all equally advancing to perfection. If the general developement be retarded, dentition is also retarded; if the latter be anormal, then the other structures are affected, and rickets, infantile paralysis, or hydrocephalus ensue. So that painful or irregular dentition may be much oftener an effect coexistent with convulsions, rather than their cause.

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[*] Medico-Chirurgical Transactions, xiv. 417.

[†] Medico-Chirurgical Transactions; Medical Commentaries; Annals of Medicine; and Edinburgh Medical and Surgical Journal; Medico-Chirurgical Review; Abernethy's Surgical Observations on Injuries of the Head, &c. 2d edition; London, 1815. Sir A. Cooper's Lectures by Tyrrell, 3d vol. 8vo. 1824-7. Vol. i.; Sir C. Bell's Surgical Observations, 2 vols. 8vo. Vol. ii. and personal observations.

[‡] Sauvages' Nosol. Tom. i. 572.

The same reasons which would lead us to exclude from this review of the diseases of dentition, the *cerebrum*, and consequently all those symptoms in which intelligence is implicated, must induce us, also, to look for no symptoms specially involving the generative organs; for as yet they exert no perceptible influence on the system. Excluding these two sources, then, of excitement and of the phenomena referred to them, we have symptoms exactly similar to many of hysteria, and indicating, that during dentition, there is a state of the nervous system analogous to that which occurs to females at the commencement of menstruation, and, in a less degree, during each subsequent menstrual nisus. The diseases of the first dentition, then, must be examined, as if they constituted but one, just as we have already examined the symptoms of hysteria with reference to the generative organs. Those usually enumerated by systematic writers[*] may be mentioned, and classed as follows: 1. Those originating in organs connected with the upper extremity of the spinal cord. *a.* Symptoms originating in the cerebro-spinal centre, coma, watching, and sudden starting from sleep; increased sensibility of the surface;[†] general and epileptic convulsions; opisthotonos, paralysis. *b.* Symptoms implicating the face; strabismus, fixed stare, sardonic grin, trismus, convulsive twitchings. *c.* Symptoms referred to the larynx, trachea, and *bronchi*;—aphonia, convulsive cough, hydrophobic gasp,[‡] spasmodic closure of the glottis, croupy breathing, wheezing from increased or diminished secretion from the *bronchi*. *d.* Symptoms affecting the Pharynx, œsophagus, and stomach;—retching, vomiting, dysphagia,[§] eructation, impaired appetite. *e.* Symptoms affecting the Heart; palpitation,[‖] syncope. *f.* Symptoms affecting the Respiratory muscles; dyspnœa, sneezing, hiccup, yawning. 2. Symptoms implicating the dorso-lumbar cord. Paralysis and tetanic extension and flexion of the lower extremitics, serous exudation from the buttocks,[*] increased micturition,[†] ischuria, mucous discharges from the urethra, dysuria, constipation, diarrhœa, colic, tympanitic distension.

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[*] More particularly in a Treatise on Diseases of Children, by the late M. Underwood, M. D. 9th edition, with notes, by H. Hall, M. D. 1835; and an Essay on *Laryngismus Stridulus*, &c. by H. Ley, M. D. 8vo, London, 1836.

[†] Cruveilhier and Parrish, quoted by Mr Joy in Cyc. Pract. Med. Art. Dentition, Vol. i. 521.

[‡] Dr Ley, Essay on *Laryngismus Stridulus*, &c. p. 36.

[§] Mr Kerr on *Laryngismus Stridulus*, Edin. Med. and Surg. Journal, xlix. p. 345.

[‖] Dr Darwall on the Managementof Infants, p. 141, 12 mo, 1830.

Systematic writers in general agree in making one or other of these symptoms the cause of the rest; the less severe having the blame of inducing the more serious. Thus the protrusion of a tooth through the gums, constipated bowels, or flatus, have had the whole catalogue attributed to their injurious influence. That they are exciting causes, may be readily granted; but if dentition necessarily caused such formidable effects, why do they not occur in every infant? or at the second evolution of the teeth? or when the *dentes sapientiæ* appear? It is true that a constipated state of the bowels will excite convulsions in infants;—but why more readily in infants than in adults? during the cutting of a tooth than in the interval? or why, indeed, is there constipation at all? The true explanation is, that this state is itself a symptom amongst others, and is frequently premonitory of approaching disease of the nervous axis; if neglected, it then re-acts secondarily as a cause. So also dyspnœa and depraved defæcation do not hold to each other the relation of cause and effect, but are simply co-existent. There is clearly some peculiar state of the nervous system of the infant during dentition; and if we separate one of these symptoms from the rest, we shall find a still more distinct resemblance between its predisposing cause and that of hysteria. The spasmodic or paralytic affection of the glottis, named *laryngismus stridulus* by Dr Good, and so elaborately illustrated by the late Dr Ley, will furnish an excellent example. *Laryngismus stridulus*, like hysteria, may be accompanied by most of the symptoms just enumerated; like the latter, also, it may be caused or cured by mental emotion, as fright or grief; by all depressing agencies; or by dental and other irritation. It equally constantly with hysteria attacks delicate, excitable habits; the exceptions of both being similar. Its paroxysms recur most frequently at night; it is hereditary,[‡] and like the other diseases of dentition and of the hysterical, is cured by change of air, moderate exercise, tonics, and the fœtid and volatile stimulants.[§] Laryngismus appears in children during dentition for the same reason that it appears in hysteria, namely, because there is a state of the system predisposing to the disease. It not unfrequently occurs in children independently of dentition.

The effects of dentition upon females after puberty, in exciting the phenomena of convulsive diseases, have been clearly elucidated by Dr Ashburner.[*] In such cases there is manifestly that predisposing state of the system, through which excitants, otherwise innocuous, originate an extensive series of morbid phenomena; and they afford another proof of the proposition, that the system of the child is more excitable during dentition, but especially at the periods when the teeth protrude, just as is that of the female during the evolution of the generative organs, and at each menstrual nisus. The child evinces this excitability in the interval between the "cutting" of each tooth, by the convulsions which morbid poisons (as that of *variola*) excite, and by other phenomena.

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[*] Mr Kerr, loc. cit.

[†] Underwood, quoting Moreton in op. cit. 394. also Whytt's Works, 4to. ed. by his Son, p. 597.

[‡] Ley, North, Davies, Pretty.

[§] Millar, Cheyne, Underwood, Marsh, Rosenstein, Ley, Darwall, Kerr.

The facility with which irritation of the mucous surfaces excites the various symptoms enumerated, is singularly contrasted with the insensibility of the brain before-mentioned. As this insensibility diminishes, as the organ is developed, so does the affectibility of the mucous membranes as age advances; so that few of the symptoms which accompany the first dentition are observed during the second. Almost all writers concur in this statement. The exceptions are observed, as might be expected, in delicate excitable children of retarded developement.

At the second dentition a new set of phenomena begins to appear. The difference in the conformation of the sexes is now more strongly marked. Some traces of puberty may be observed, and the male is obviously less excitable than the female. The morbid nervous phenomena of the female at this period are especially exhibited in chorea.[†] I may here observe, that under the term chorea, I comprise irregular muscular movements only. Simple combined movements, as rotation of an extremity, or of the whole body, or rhythmical combined movements, as in case 61, constitute a distinct class of phenomena. Sydenham, Cullen, Hamilton, Clutterbuck, Elliotson, and, indeed, almost every writer on the subject, have agreed in stating that this affection attacks youths between the ages of 7 or 8, and 14, or puberty. It has not been so generally remarked that the liability to the diseases increases as the period of puberty approaches. The following table by M. Rufz, internal pupil at the Höpital des Enfans Malades, shows very clearly the accuracy of this statement.

Age.	Males.	Females.	Total.
1 to 4	3	2	5
4 6	2	3	5
6 10	16	45	61
10 15	30	88	118
	51	138	189

This table illustrates another general fact, that chorea attacks females more frequently than males, in the proportion of three-fourths of the whole number, as stated by Heberden, and repeated by Dr Elliotson.* The above cases were observed among 17,213 boys, and 15,763 girls, admitted into the hospital during the ten years from 1824 to 1833. If the number of girls had been equal to the number of boys, the number of cases in females would have been 157, so that the cases occurring in boys is a fraction less than a fourth of the whole number. I shall have to notice under the head of epilepsy that the latter disease most frequently affects boys at puberty.

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[*] London Medical Gazette, Vol. xiii.

[†] Edinburgh Med. and Surg. Jour. xlii. 228, from Archiv. Gener. Feb. 1831.

Chorea generally disappears at puberty, is a rare disease after that period, and when observed in young adults, had been excited by mental emotion, or depended upon organic disease in the cerebellum. This disease may also, like a paroxysm of hysteria, or *laryngismus stridulus*, be cured by mental emotion, or excited by excessive depletion, as shown by the jactitation following blood-letting. It will be found to be accompanied by the same general phenomena, *mutatis mutandis*, as those observed in the first dentition. There is spinal tenderness,† neuralgia, obstinate constipation, tender and distended abdomen,‡ altered urinary secretion, and depraved appetite. It is frequently complicated with other spasmodic diseases. The peculiar motions always commence in parts having an anatomical relation with the cranial end of the cord. There are first movements of the eyelids and rolling of the eyes; then twitchings of the face, inarticulate speech, aphonia, sneezing,§ involuntary movements of the extremities, gradually increasing in intensity, and ending, if not checked, in tetanus, epilepsy, and idiotcy. It differs from other diseases of childhood in this particular, that the fetid medicines are of little use; mineral remedies, as iron, silver, copper, zinc, bismuth, iodine, &c. being the most efficient. This is a dissimilarity worthy notice in connection with the state of the blood in nervous diseases. The pathological appearances after death during chorea are not well ascertained. Pain in the occiput is a very common symptom during life; || the cerebellum is so much enlarged in a little girl now in the hospital, with chorea, that it has given its exact shape to the occiput, so that the finger can easily define its lobes and extent. These circumstances, and the connection of the disease with the evolution of the generative organs, render it probable that the

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* Clinical Lectures in London Medical Gazette, vii. 652.

† Dr Stiebel in Brit. and For. Med. Rev. iv. 505, from Wöchenschrift die Gesam. Heilk. No. i. 1837.

‡ Case by Dr Elliotson, Lancet, ii. 1827–28, p. 410.

§ Dr Stiebel, op. cit.

|| Cases by Dr Elliotson, op. cit. p. 256, 733, by Dr Addison, Guy's Hosp. Rep. Vol. ii. p. 503. Dr Crawford, Cyc. Pract. Med. i. 408.

true cadaveric lesions of chorea will be found in the cerebellum.* Chorea, however, as regards both its symptomatology and pathological anatomy, has been considered by writers in general in a very limited manner. Like analogous affections it is only a symptom co-existent with other phenomena which have been erroneously considered its causes, as for example constipation and spinal tenderness. Thus, the transition of the disorder into epilepsy and idiotcy, and the various morbid appearances observed in the brain of those who have died of chorea, must be considered as phenomena of the more advanced stage of one general disease, of which slight choreal movements, constipation, &c. are the premonitory or initiatory symptoms. For further information I would refer the reader to the able account of the disease by Dr Andrew Crawford, in the first volume of the Cyclopædia of Practical Medicine. Having verified a large part of the numerous references there given, I can do this confidently.

I have thus attempted to trace the appearance of certain phenomena of hysteria through infancy and childhood, to puberty, when the evolution of the sexual system, establishes a series of special relations, originates new phenomena, and renders those more prominent which complicate parts having a functional or anatomical relation to the sexual organs. In short, we are brought back to the point at which I commenced my analysis.

If we review our analysis we may deduce some positive and useful principles. We may infer that many of the phenomena of hysteria originate at other and earlier periods of developement than puberty; that each period is characterized by peculiar phenomena; but also, that the great general resemblance indicates a community of origin. We may infer further, that certain general conditions of the system are necessary for the due appearance of the phenomena at any period. Dentition is not always accompanied by convulsions or constipation, nor is the period antecedent to puberty always characterized by chorea, nor puberty by hysteria. These general conditions have been considered under the second section.

We may infer, also, that the affectibility of childhood is diminished in the male on the approach and by the accession of puberty, while in the female it is only altered in proportion as more vigorous vital powers influence the system, and becomes strikingly apparent so soon as those powers are depressed. This general fact is singularly corroborative of the embryological speculations which represent the difference of the sexes to depend upon a less or more vigorous formative nisus operating in the rudiments of the embryo.

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* Case lxxviii. in Dr Abercrombie's Researches on Diseases of the Brain and Spinal Cord, p. 171, is illustrative.

Lastly, we may infer, 1. that the centre of muscular movements, and the seat of sensations and emotions are not in the hemispheres of the cerebrum,—the undeveloped organ of intellect, but in close relation with the ***medulla oblongata***; and, 2. that the emotions of physical love and its accessory feelings act upon parts of the nervous system, which are in intimate connection with the same structures.

EFFECTS OF MENTAL EMOTIONS AND THEIR RELATIONS.—In nearly one-third of the cases of hysteria I have recorded, the disease originated from mental emotion;—fear or terror in the greater number, and grief or sorrow in the remainder, with one or two exceptions. These are all depressing emotions. I am not aware that the physical changes produced in the blood by mental emotions have been investigated. It is generally stated that the blood does not coagulate in those who die from violent mental emotion, just as when death follows the entrance of certain animal and vegetable poisons into the system. We may therefore infer, that the blood undergoes changes approaching this state in all cases of violent mental emotion.

It is also evident from the series of cases, that mental emotions not only affect structures in anatomical relation with the cranial end of the cord, as *a priori* might be expected, but also organs in connection with the dorso-lumbar. This fact may be observed generally in lower animals, which express emotions by the caudal extremity, as well as by the eyes, ears, lips, and neck. The horizontal and vertical movements of the tails of the feline and canine races express opposite passions. The lion lashes his tail from rage, the dog wags it from delight. The erected tail of the cat expresses fear, of the dog, confidence and courage. And so through the lips, the horse and dog express opposite emotions by the same movements. Grinning in the dog denotes rage, in the horse, amiability and pleasure. These illustrations might be multiplied to a great extent.

I shall confine myself principally to the effects of physical love and its accessaries, and of the depressing emotions; arranging their phenomena with a reference to the skin and the two extremities of the cord.

The power of the sexual passion in exciting hysteria is evident from the general fact, that it frequently follows disappointments, and affects unmarried females. Self-pollution is mentioned by Villermay as a cause of hysteria, and I believe with great justness; other writers also refer to it; I think those cases marked by irregular arterial action originate in this practice. Strong sexuality is another very evident cause, especially when combined with continence. " Salacitas major, major ad hysteriam proclivitas."[*] Hence that remark of Hippocrates, which has been repeated by almost every writer since his time, that the best cure of hysteria is for the patient to marry and bear children.

The phenomena of nymphomania have not been minutely observed. Louyer Villermay[†] quotes from Helvetius and Chambon cases which were accompanied by the phenomena of hysteria in the highest degree. The same writer mentions an appearance of strangulation, great horror of liquids, and the excitation of pain and general spasms by the slightest touch among the phenomena.[‡] In a case he records there were distended hypogastrium, spasmodic constriction of the œsophagus, sardonic grin, hiccup, and irregularity of the pulse.[§] He also details a case observed by Alibert in the Hospital St Louis, in which the slightest touch used to excite frightful convulsions, which continued for half an hour, the patient uttering lamentable cries, and exactly resembling a convulsionnaire of St Médard. In this case the hips, thighs, and legs were surprisingly plump, while the chest and upper extremities were in a state of extreme emaciation.[‖] In another case, quoted from Steggmann, of a young girl twelve years old, sardonic laugh and extraordinary convulsive movements were accompanied by such an erection of the nipples, that they raised the shift.[¶]

In satyriasis the symptoms are somewhat analogous. Duprest Rony quotes a case[**] in which there was painful sensibility of all the organs of sense, analogous to that of phrenitis or hydrophobia. Crichton gives a case at length of erotomania bordering on satyriasis, which terminated fatally on the fifth or sixth day with all the symptoms of hydrophobia.[††]

Villermay lays great stress on the connection of herpetic and other diseases of the skin with nymphomania. The greater part of this author's details and others may be found in an elaborate essay on this disease by Dr Davis in his Obstetric Medicine, p. 444.

The passions acting through the sexual system excite singular effects. Cabanis gives a curious instance of the effect of jealousy in exciting priapism. "J'ai connu un jeune étudiant en mèdicine qui, dans un violent accès de jalousie, éprouva pendant plusieurs heurs le priapisme le plus invincible et le plus douloureux, accompagné tour à tour de pertes de semence et d'emissions d'un sang prèsque pur."[‡‡]

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[*] Sauvages' Nosol. Method. Tom. i. p. 589.

[†] Dict. des. Scien. Med. xxxvi. p. 566.

[‡] Ibid. p. 570, 571.

[§] Ibid. 580.

[‖] Op. cit. 582.

[¶] Ibid. 591.

[**] Op. cit. Tom. i. p. 51.

[††] From Psych. Mag. v. part ii. article iv., in his Inquiry into the Nature and Origin of Mental Derangement, 2 volumes 8vo, 1798, Vol. ii. p. 322.

[‡‡] Rapports du Phys. et du Mor. de l'Homme, 3d ed. ii. p. 402.

Montagne gives, in his essays, some curious instances of the effect of fear. Analogous is the paralysis of the bladder, which many experience when they attempt to pass urine in the presence of others. Mental agitation occasionally excites spasmodic stricture of the urethra.* Surprise or anxiety will check uterine action, as most accoucheurs must have noticed during their juvenile practice. Fear for offspring may be classed under this head. A lady of my acquaintance, in good health, was informed that her little boy had been leaning out of a chamber window in a very dangerous position. She immediately felt sudden faintness and pain in the occiput, and soon after violent spasmodic colic and great tenderness of the abdomen. Fear in general has the most marked influence on the organs affected in hysteria. Children from very slight emotions of this kind will have diarrhœa, frequent and involuntary micturition, and involuntary movements. The effects of extreme fear will most elucidate the subject if given in a connected order. 1. Chorea, convulsions, hysteric paroxysms, syncope, coma, catalepsy. 2. Constriction of the scalp, paleness of the face, spasm of the facial muscles, spasm of the glottis, aphonia, gasping, palpitation. 3. Menorrhagia or suppressed menses, diarrhœa, increased flow of urine, and frequent desire to pass it; relaxation of the sphincters, loss of power over the legs. 4. Profuse sweats, increased or diminished secretion of colouring matter from the cutis,† suppressed flow of milk.

In the effects of grief we have the same symptoms, some being more, others less obvious. The symptoms indicating an affection of the cerebro-spinal centre are the same in both. The convulsive movements of the face and respiratory muscles, in general, are more obvious, and we have well-marked globus, sobbing, and lachrymation. The respiration is slow and oppressed, the action of the heart impeded, and there is a peculiarly painful sensation in the epigastrium. Dr Crichton states, that this affection is almost peculiar to females, and that he has seen two instances in which it was accompanied by hemorrhages from the stomach, lungs, and uterus.‡ Sometimes the intestines will ulcerate.

After this general statement there can be no difficulty in conceiving why mental emotions should so frequently excite deranged action in the generative system and the whole train of hysterical phenomena. But there is another point in the history of mental emotions which should not be forgotten, namely, the power they possess of curing certain diseases of the nervous system. This fact is so notorious as to require no comment; and I mention it now with reference to those cases of hysteria in which imposition is suspected; for if fear will restore the maniac to reason,[*] arrest or prevent violent sea-sickness,[†] excite the secretion of urine after having been long suppressed, (case 5,) and arrest imitative convulsions or barking cough, (case 1,) it is plain that we must not hastily conclude a patient is malingering because certain symptoms disappear after threats have been used. In case 49 the nurse thought the patient vomited wilfully when the medical officers visited her; yet the vomiting really followed mental excitement.

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* Case in London Medical Gazette, i. 807.

† M. Rostan (in Nouveau Journal de Médecine 1819,) relates the history of a female who was imprisoned during the French revolution, and threatened with execution while menstruating. Her skin in consequence assumed permanently the hue of the less dark negro. Blanched hair is a consequence of fright. The executed Queen of France experienced this change; and an analogous case is given in Arch. Gen. 1827.

‡ An Inquiry, &c. Vol. ii. p. 190.

Effects of Blood-letting.—These, like the effects of emotions, are amply shown in the cases detailed. A general review of them will be useful. The convulsions and hiccup excited by great loss of blood were noticed by Hippocrates. Boerhaave mentions it in his list of causes of convulsions, and Van Swieten states that slain animals afford daily illustrations of the fact, as well as the results of flooding in parturient females.[†] Dr Armstrong says, that bleeding children to syncope may sometimes induce even fatal convulsions, and Dr Kellie also remarks, that fits of apoplexy and epilepsy occasionally follow bleeding from the arm. The effects of loss of blood are always most obvious in females and delicate males. Arranged with reference to the two ends of the spinal cord, and to their progressive intensity, we have in the first stage, syncope, convulsions, profuse perspiration, vomiting, relaxation of the sphincters, increased micturition, diarrhœa; 2. Pain and throbbing of the temples, sense of weight in the vertex, irregular action of the heart. "The respiration is affected in different cases, with panting, heavy sighing, heaving, blowing, moaning, gasping, catching, &c. There is in some cases an irritative cough, in violent fits, or in the form of perpetual hacking, apparently arising from an affection of the trachea. The stomach is liable to be affected with retching, vomiting, hiccough, and eructation, and the bowels, even in cases in which they were not previously disordered, become variously deranged with constipation, diarrhœa, and flatulency. In some cases there are various spasmodic affections; in other instances, catching pains, which are apt to be mistaken for inflammation. Every source of disturbance, or of anxiety, or of alarm, and every effort, whether of mind or body, is apt to be followed by a return or exasperation of the symptoms,"* and there is morbid sensibility of the skin and senses in general. † 3. Jactitation or choreal movements, delirium, paralysis, blindness, deafness, slight insensibility increasing to apopletic coma; jerking of the legs, relaxation of the sphincters, diarrhœa or constipation, tympanitic distension. In a word, the whole train of symptoms which may be observed in a case of aggravated hysteria, (*e. g.* cases 6, 15, 33, 35.) Loss of blood, then, acts on the same parts of the nervous system as the exciting causes of hysteria, and is one of the latter.

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[*] Med. Chir. Rev. xxvii. 540.

[†] Zoonomia, 3d. ed. Vol. i. p. 333. Darwin mentions his personal experience while at sea.

[*] Comment. apud Boerhaave, Tom. i. 376, 377, ed. 2da.

[†] On Puerperal Fever, p. 191, 2nd ed. [‡] Edin. Med. Chir. Trans. i. 105.

Effects of Poisons.—Many of these will be best discussed under the next head, as those following the bites of certain animals, namely rabid dogs, certain arachnidæ, and reptiles, and those consequent on the introduction of acro-narcotic vegetable poisons into the system. The action of the mineral poisons, mercury, arsenic, antimony, iron, gold, lead, silver, zinc, bismuth, and iodine, on organs implicated in the phenomena under consideration, and on the nervous system in general, in causing and curing paralytic, spasmodic, and neuralgic affections, is a subject of the highest importance. Thus antimony and arsenic act specially on the stomach: mercury and arsenic on the generative organs; mercury, gold, antimony, and iodine on the salivary glands; zinc, arsenic, and antimony, cure malarious diseases; iron, silver, and copper, epilepsy; mercury, iodine, and lead, cause neuralgia and paralysis.

Phenomena of certain Diseases of the Nervous System.—I shall attempt a review of those only which specially elucidate the subject. They may all be arranged as they depend on increased or diminished motive or sensitive power, and must be reviewed with reference to the morbid affectibility of hysteria, and to their connection with the two ends of the spinal cord.

This morbid affectibility, considered in its relation to lesions of motion and sensation, is worthy of an extended notice. It may be confined to one portion only of the mucous surfaces, (including the skin,) or implicate the whole. It may exalt the sense of touch only, or all the senses, as well internal as external, and give rise to singular acuteness of hearing, seeing, feeling, smelling, and of certain intellectual powers, as those connected with rhythmical sensations and motions. With regard to its agency as the immediate cause of convulsions, a slight touch of the surface, (cases 59, 60, 62,) an attempt to swallow, or the introduction of a probang (48,) or a current of cold air passing over the pharyngo-laryngeal surface; the slightest mental emotions, (31, 35, 41, 48, 49); the hearing of water dropping, or the sight of it, or anything transparent, or of certain colours, especially red and green, or scarlet and white,* may all be the immediate exciting causes of convulsive movements.

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* Quoted from the chapter "on the effects of loss of blood in the puerperal state," in Comm. on the Diseases of Females, by M. Hall, M. D. p. 226, 227, 8vo, London, 1827.

† "Copious bleeding excites increased sensibility of the surface, and hence the precept not to apply blisters to individuals who have been so treated." Andral, Lectures on Diseases of Nervous System, in Medical Gazette, xvii. 586.

As regards local affectibility. In my previous paper I have attempted to show that the circumscribed or local tenderness observed over the spinal column, in a great variety of diseases, could not be considered as a sign of tenderness of the spinal cord. The general sensibility, to use the words of Dr Elliotson (60,) "is purely a state of the sentient nerves;" and these cases of local tenderness are precisely analogous. We find the symptom almost peculiar to the median line, in which there may be some physiological connection between the two halves of the nervous system of the whole body. This is shown by the *clavus* and sense of weight felt on the vertex in hysteria, and by all cases of spinal tenderness. I by no means wish to advance that local circumstances, as the transmission of a nerve through a bony foramen, or its compression by a tendon, or by morbid structures, will not induce pain and tenderness referred to that part of the surface to which it is distributed, or even such a degree of neuralgic sensibility that convulsions will follow a slight touch. I rather maintain the contrary; but in hysteria, gasp (which is a sudden spasmodic action of the respiratory muscles) will rarely be excited by pressure on any other part than the anterior or posterior median line.† When gasping is so excited, it may be considered analogous to every other gasping, however produced; differing in this respect, that the spasmodic action of the parts implicated is excited by a slight cause, because the affectibility of the nerves of the skin, in connection with the pneumogastric and phrenic, is exalted. This is probably the reason why pressure on the middle of the sternum will excite gasping and spasm, as readily as if made on the cervical and dorsal vertebræ; and the access of cold air to the larynx or *bronchi*, or of cold water to the skin, have similar effects in poisoning by arsenic,[*] *entasia lyssa*, tetanus, *laryngismus stridulus*, or cases of hysteria. The nausea and vomiting consequent on the ingestion of animal food, a symptom so common in aggravated hysteria, probably originates in a similar morbid sensibility of the stomach. This symptom is very strongly marked in a case of hemorrhagic hysteria (Löis, Dalton,) now in the hospital, in which I suspect there has been ulceration of the stomach.

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* Parry, Cases of Tetanus and Rabies Contag. p. 106. Bath, 1814.

† "A young married lady, who was liable to ordinary attacks of hysteria, complained of a tender spot on the anterior part of the abdomen, a little below the ensiform cartilage. The slightest pressure of the finger on it caused excessive pain, and violent convulsive movements of the whole person, resembling those of chorea." —Sir B. Brodie, Medical Gazette, xix. 250. A hysterical female, named Hebditch, aged 38, came into the York Hospital with extensive sloughing of the tonsils. When recovering, she complained of a tender spot on the centre of the sternum. Pressure upon it, and on the opposite point on the back, caused gasping. She would not permit me to touch both points at once; she was sure it would suffocate her. Tenesmus, griping, and flow of blood from the anus came on: she then menstruated, and immediately recovered.—See another case at page 59. It would appear from Weber's experiments that there are portions of surface on the anterior and posterior median thoracic line more sensitive in a state of health than the rest. When

The psychological phenomena connected with this morbid affectibility will be noticed in their proper place. At present I must confine myself to a review of those diseases in which it is most particularly observed. These are, spasmodic asthma, *angina pectoris*, tetanus, the effects of certain poisons, epilepsy, some forms of neuralgia, and paralysis.

Spasmodic Asthma.—In the true nervous asthma we have a morbid local affectibility affecting the respiratory system, especially of males.[†] This is a point of dissimilarity, the investigation of which, in connection with the thoracic developement of the male, might lead to some important results. It is worthy notice, that, like a large number of paroxysmal diseases, it is heptaperiodic, or occurs at periods of seven or their multiples. Heberden mentions a case in which the paroxysm was septennial. "In one case mentioned by Wainwright, the paroxysms always returned at the menstrual period, during seven years; and in another recorded by Fransieri in the first volume of the Memoirs of the Royal Academy of Madrid, they are stated to have recurred at every new and full moon, for no less a period" than three times seven years.[‡] This periodicity alone presents an ample field for investigation, especially in its relations to developement. It is clearly an effect of some very general law. Independently of the periodical recurrence of this affectible state, all depressing causes will excite a paroxysm, as exposure to cold, indigestion, any slight exertion, mental emotions, &c. Like other spasmodic diseases its at-

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Weber applied the points of the compasses on a line round the thorax, two spots were found on the mesial line before and behind, on which the sensibility was more defined than elsewhere. The cases just mentioned constitute very interesting corroborative proof of the accuracy of this observation.

Exquisite sensibility of the rectum, or rather of the anus, has been mistaken for stricture of that part, but it is nothing more than a hysterical local neuralgia. There is a case now in the hospital in a very nervous female. This affection is exactly analogous to the preceding; it is a natural sensibility exalted.

[*] Case quoted in Dr Christison's Treatise on Poisons. Edin. 1829. P. 216.

[†] Dr Forbes, and quoting Frank, in Cycl. Pract. Med. i. p. 125.

[‡] Dr Forbes' Essay, op. cit. 185.

tacks generally recur at night. Dr Forbes has traced an analogy between this disease, (which he considers spasm of the muscular fibres of the *bronchi*,) and spasm of the glottis.[*] He thinks the respiratory muscles are not involved in the spasmodic action. The spasmodic ejection of the feces during a paroxysm, and the positive testimony of asthmatics, shows that this opinion is contrary to fact. A sufferer describing his feelings says, " the spasmodic heavings of the chest during severe fits, were so violent as to produce a concavity in the abdomen, and to exhibit the muscles of the abdomen like tightly drawn cords, stretching from the chest to the pubes."[†] So that the disease is probably spasm of both the respiratory tubes and muscles. The general symptoms accompanying a paroxysm are heaviness over the eyes, a trance-like state[‡] and drowsiness; impatient temper,[§] profuse flow of saliva,[‖] sometimes tasting saline,[¶] occasionally dryness of the mouth, and arrested salivary secretion, copious flow of pale urine and diarrhœa. " Flatus of the stomach and colon are seldom absent in spasmodic asthma;"[**] and there is rachialgia.[††]

Angina pectoris. This disease is also peculiar to males. Of 88 cases noticed in various writers by Dr Forbes, only eight were in females; one-half of these were cured or relieved, while six-sevenths of the males died, or were unrelieved, but only two females died.[‡‡] It is not improbable that some of these cases, especially the cured, were forms of functional disease. *Angina pectoris* is essentially a neuralgia of the heart, and may depend upon functional or organic changes in the nerves of that viscus.[§§] The affectibility of those suffering from angina is clearly analogous to that of certain other neuralgic and spasmodic affections. A breath of cold air, sneezing, or any slight muscular effort, or the state of the system about midnight, will induce a paroxysm. So also a mental effort will either induce or prevent it.[‖‖] It appears to be hereditary.[¶¶] The neuralgic affectibility in this as well as other diseases of the heart extends to the median line, so that a slight touch or pressure will excite a gasp. The posterior median line, however, seems more sensible than the anterior. Just as in the analogous disease, asthma, the stomach and colon are distended with flatulence, but especially the stomach. Dr Forbes[***] thinks there is little reason to doubt, that the gas is formed in the intestinal canal during or immediately before the paroxysm.* I have already alluded to this flatulent distension in the first division of the analysis, and given reasons for considering it to originate in a secretion perfectly analogous to the increased flow of saliva and urine, observed in nervous affections. It is not a cause of the paroxysm, as has been frequently supposed, but a co-existent effect; and in like manner, when the paroxysm is subsiding, and the stomach regains its contractile power and expels the flatus, we have not two circumstances standing to each other in the relation of cause and effect, but simply co-existent. Individuals have angina in its most incipient stage, namely, intermittent pulse, sense of uneasiness in the thorax, and flatulent distension of the stomach; but they ascribe the intermittent pulse to flatus, whereas the phenomena are all co-existent symptoms originating in one general cause. This species of angina will be occasionally excited by mental exertion without being accompanied by flatulence. It is then attributed to its right origin. I need only add, that the general remarks applicable to local neuralgia are equally applicable to *angina pectoris.*

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[*] Dr Forbes' Essay, op. cit. 185.

[†] Journal of an Asthmatic, Dublin Journal, xiii. 24 [‡] Ibid.

[§] Bree on Disordered Respiration, 4th edition, 139.

[‖] Journal of an Asthmatic, op. cit. 25. [¶] Ibid.

[**] Bree, op. cit. 25.

[††] Journal of an Asthmatic. op. cit. 30.

[‡‡] Cyclopedia of Practical Medicine, Art. Angina pectoris, i. p. 83.

[§§] Ibid. 86.

[‖‖] Dr Black, Medico-Chirurgical Transactions vii. 75.

[¶¶] Dr R. Hamilton, Med. Comm. ix. 312.

[***] Op. cit. i. 91.

Tetanic Spasms.—These are common in hysteria. The affectibility of the surface in traumatic tetanus is automatic, that is to say, the agents which, applied to mucous surfaces, excite the tetanic spasms do not excite painful sensations. In short, there is no neuralgic sensibility. This is a distinction of considerable importance. The tetanic state first shows itself by involuntary jerkings in the wounded limb, if the leg be the seat of the injury. This symptom is precisely analogous to the involuntary movements of the paralytic, and the "jumping" of the fractured leg. After a while the (so called) extensors in connection with the cranial and cervical portion of the spinal cord are affected, and trismus and rigidity of the throat muscles come on, before those of the back and lower extremities are involved in the spasm. Antecedently to this completion of the tetanic state, the automatic affectibility is fully established. A very slight mental emotion will excite a paroxysm. The very sight of water,† cold suffusion,‡ the attempt to swallow,§ or tapping the epigastrium gently will have the same effect.|| Even the contact of the skin of the back with the bed-clothes will cause emprothotonos or violent and agonizing

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* Op. cit. Vol. cit. 91.

† Dr Symonds, Art. Tetanus, Cycl. of Pract. Med. iv. 670.

‡ Aretæus de Causis et Signis, ac. lib. i. cap. vi.—Dr Parry, Cases of Tetanus, &c. p. 4.—Dr Bright, Guy's Hospital Reports, i. p. 111.

§ Dr Dickson, Med. Chir. Trans. vii. 457.—Dr Macarthur, Ibid. 469. Lond. Medical Gazette, i. 645, and vi.—Dr Symonds, op. et loco cit.

|| Dr Anderson, Medico-Chirurgical Transactions, ii. 319.

convulsions.[*] This is a point worthy more particular observation in connection with Bellingeri's theory of muscular antagonism. In a case of "Pott's disease," reported by Dr Elliot,[†] in which there were violent involuntary movements without consciousness, friction upon the sacrum excited the flexors of the legs to act, while the same stimulus to the ileum excited the action of the extensors. Is it possible that stimulation of the skin of the back will specially excite the extensors of the back? or are not these extensors, physiologically, flexors? The general symptoms of tetanus are excessive cardiac action, vitiated secretion of saliva, profuse perspiration, and occasionally a miliary eruption; scanty urine, very constantly, obstinate constipation, rarely, vomiting, and never cough. This is an important point of dissimilarity. The pathological phenomena are an inflamed or highly vascular state of the pharynx, œsophagus, larynx, and bronchi; of the lower portion of the ileum and of the cæcum. Dr O'Beirne asserts that distension of the cæcum and colon is the only constant pathological appearance. From the perusal of several dissections, I am induced to think this assertion much too exclusive. The *meninges* are frequently injected.

The tetanic spasms of hysteria differ from those of traumatic tetanus, in being accompanied by increased psychical sensibility, in which is probably involved the automatic affectibility before-mentioned. They are frequently local, being confined to one-half of the body, especially the left, or to one extremity, or one set of muscles. Cramp is a species of tetanus, the predisposing cause being the state of the nervous system during sleep, the exciting, some irritation in the lower bowels. I would here observe that spasmodic action, of whatever duration, may be denominated tetanic, and the term in this general sense may serve to include the spasms of entasia lyssa, or of hysterical hydrophobia. When the spasms are of short duration and frequently repeated, they are convulsive, as in epilepsy.

EFFECTS OF CERTAIN POISONS.—1. Of animal poisons; namely, those consequent on the bite of a rabid dog, and of certain arachnidæ; and following the ingestion of cantharides. 2. The effects of some acro-narcotic vegetable poisons.

Hydrophobia, or Entasia lyssa.—With regard to the symptoms of spontaneous rabies in the dog, there appears little resemblance between them and those observed in animals bitten. The dog has none of that exquisite sensibility which is the most prominent of the latter. Its temper is irritable, appetite wanting, or so depraved that it will eat its own excrement. The conjunctivæ are injected, there is a flow of saliva, dyspnœa, attempts to vomit, inability to pass urine and feces, and paralysis of the head and legs.[*] But in poisoned pigs Mr Gilman[†] found the symptoms remarkably modified. These pigs had inflamed conjunctivæ, rigors and paralysis of the hind legs, and also anhelation and violent convulsive movements on attempting to take food or drink, or from the slightest mental excitement as that produced by stamping on the ground at a distance from the animal. In short, exquisite sensibility inducing violent muscular action from the slightest cause. In the dog then, the poisonous matter is a morbid secretion, but not acting as a poison on that animal unless, perhaps, when bitten.

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[*] London Medical Gazette, vii. 428.

[†] Ibid. xxii. 17.

The principal cadaveric phenomena noticed by Mr Gilman in pigs and dogs, were in organs in connection with the cranial cord. In pigs there was inflammation of the under surface of the œsophagus; in dogs, of the parotid and salivary glands, the uvula, fauces, under surface of the epiglottis, pharynx, œsophagus, and stomach.

In man, the first circumstance noticed is the extreme affectibility of the nervous system; this is indicated in an early stage by pain in the wound. A painful sensation is next felt about the throat, (a symptom very common in all envenomed wounds,) and a distinct increase of power to listen to sounds and detect smells which no one else can observe; light is distressing, and the skin, particularly of the scalp, is very sensible to impressions; a tickling sensation is then perceived, which at last becomes painful, and ends in anasthesia. There is also mental irritability, dyspnœa and convulsive movements are excited by the least noise, as a whisper, or from a current of air, or on the sight of certain colours, or of brightness. Delirium, paraplegia, and impaired senses, general tetanic spasm or convulsions, and apoplectic coma, precede death. The local symptoms arranged according to the plan I have adopted are as follow: eyes bright and rolling; angles of mouth retracted; flow of saliva; spasm at the root of the tongue; pain and enlargement of the thyroid gland; pain in the throat; violent cough; laryngeal spasm and anhelation on the slightest excitement; very quick pulse; nausea and vomiting; flatulent distension of the stomach and bowels; urine milky, and passed involuntarily; paraplegia.[‡] Every one of these symptoms may be observed in cases of hysteria.

The increased sensibility, especially of the pharyngo-laryngeal surfaces, gives rise to a series of phenomena, which, being more prominent than the others, have given their name to the disease. The case, however, is really one of poisoning, and the phenomena are analogous to those of tarantism and of poisoning by cantharides, strychnia, or arsenic.

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[*] Mr Gilman, Prize Dissertation on the Bite of a Rabid Animal. Lond. 1812.

[†] Ibid.

[‡] These are not, of course, to be expected in each individual case. The list is taken from Gilman's, Parry's, and Bardsley's respective works on the subject; especially the article by the latter, in the Cycl. of Pract. Med. ii. 483. Cases reported in Med. Chir. Trans. the Edin. Med. and Surg. Journal, the Lond. Med. Gaz. and the Lancet, have also been laid under contribution.

Tarantism.—Under this term are comprised the effects resulting from the bite of certain arachnidæ, especially the scorpion of South Italy, and the tarantula spider. As the existence of the disease has been denied, like that of many other anomalous phenomena, I shall defer the review of it; and merely remark here, that there is nothing so remarkable in the acknowledged phenomena of tarantism as to render their existence apocryphal.

Effects of Cantharides.—In addition to the well known effects of this drug on the genito-urinary organs, an "affection of the throat, causing difficult deglutition, and even an aversion to liquids, appears to be pretty constant."[*] An instance is also related in the Transactions of the Turin Academy,[†] of tetanic convulsions and hydrophobia appearing three days after a small dose of the tincture of cantharides was taken, and continuing for several days with extreme violence; tetanus was induced by a slight touch. In a boy who took an ounce of the tincture by mistake for laudanum, general convulsions came on at intervals. During the remission he was insensible, and his limbs retained for any length of time the position in which they were placed. He seemed to recover, but he predicted the day of his death, and on the day mentioned, the convulsions returned, and he died.[‡]

Effects of certain vegetable poisons.—Strychnia excites phenomena very analogous to those of tetanus. There are the most violent tetanic convulsions of the whole muscular system. When they remit a slight touch of the surface immediately re-excites them. This state of spasm and acute automatic (?) sensibility follows poisoning by brucia. The latter acts on segments of the nervous system through the circulation. Professor Emmert of Berlin severed the spinal cord, and inserted the poison in a wound of the hind-leg; both anterior and posterior extremities became tetanic.[§] More recent researches show, that if solution of nitrate of strychnia be introduced under the skin of pigs, tetanic convulsions of the hind-legs do not occur after division of the spinal cord.[‖] The roots of cicuta when eaten, excite epilepsy and tetanus.[¶] Opium acts on frogs just like strychnia, (Müller,) exciting tetanus, &c.; solanum produces convulsive movements, heat of throat, and erections of the penis;[*] henbane,—epileptic convulsions and symptoms like those of poisoning by belladonna;[†] belladonna and stramonium,—delirium, laughter, weeping, spectral illusions, somnambulism, jactitation, or choreal movements, aphonia, croupy cough, and hydrophobic gasping.[‡]

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[*] Dr Christuson, Treatise on Poisons, p. 456.

[†] Quoted in Ibid. 457, and at length by Orfila, Toxicol. Gen. i.

[‡] London Medical Gazette, xv. 320.

[§] Quoted by Dr Symonds in Cyclopedia of Practical Medicine, iv. 679.

[‖] By Dr Stannius in Müller's Archives, Hefft ii. 1837. Also Müller's Physiology by Baly, p. 629.

[¶] Sauvages, Nosol. Method. ii. 574. Merat et De Lens, Dict. de Matière Med. &c., ii. 282.

Epilepsy.—The great variety of causes of epilepsy, as given by systematic writers, may be classed under three heads,—1. The form, the nature of which is least known, originates in an hereditary malconformation, which seems somewhat analogous to the hæmorrhagic and tubercular diatheses. 2. Another kind is concomitant with organic change in the nervous centres, originating in accident or disease. 3. The third includes those epilepsies caused by functional excitement of the encephalon, or of the extremities of nerves. I shall only allude very generally to epilepsy of the last species.

In using the term epilepsy, it must be understood to have a very extensive application. Partial convulsions, as of one arm or leg, are called epileptic,[§] although they occur without loss of consciousness, or subsequent coma; simply because they frequently precede the true epileptic state. They are generally premonitory of epilepsies arising from causes under the second head. A sudden faintness with vertigo, and mental disturbance lasting but a few seconds (*leipothymia*) has been considered epileptic, from its occurrence as a premonitory symptom. It is frequently concomitant with derangement of the stomach and bowels; I have known it excited by laughter. Epilepsy may be also partial with respect to the seat of muscles involved in the spasmodic movements. In the genuine and common form, there is violent, involuntary, and alternate contraction of all the muscles of the body; but if the contraction affect the extensors only, and is not alternate but continuous, the paroxysm assumes the tetanic form.[‖]

If we review the phenomena of epilepsy in reference to their exciting causes and the organs they implicate, little difference will be found between them and the phenomena of other paroxysmal diseases of the nervous system. In most cases mental emotion will induce[¶] and prevent[**] a paroxysm. Like the more violent paroxysms of hysteria, infantile convulsions, and neuralgic and spasmodic affections in general, the fit most frequently occurs during the night. Like these, the disease is most relieved or cured by mineral remedies, fœtid stimulants, change of air and regimen; like these also, it may be excited by stimuli to the mucous surfaces, especially the genito-urinary. Like all spasmodic affections not immediately fatal, and dependent on functional derangement, whether caused by poisons or otherwise, it is frequently accompanied by some morbid state of the skin. And, like several of them, its premonitory and paroxysmal phenomena implicate the external senses, exalting or diminishing their sensibility; the salivary glands; the respiratory and gastric nerves; and the parts in connection with the lower end of the spinal cord. These remarks are intended to apply especially to those cases depending on functional derangement.

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[*] Sauvages, Nosol. Method. vi. 414. Medico-Chirurgical Review, xx. 205.

[†] Ibid. iii. 571.

[‡] Mr Duffin, London Medical Gazette, xv. 194. Jour. Hebdom. 1835. Jour. Univers. xxii. 239.

[§] Boerhaave, Aphor. Sect. 1089.

[‖] Dr Cooke on Nervous Disorders, ii. 17. Dr Cheyne, Cyclopædia of Practical Medicine, ii. 91.

[¶] Boerhaave and Van Swieten, Comm. iii. 402

[**] A boy could ward off a fit of epilepsy by biting his tongue. Dr Seymour, Clinical Lectures, Medical Gazette, xix. 154.

The most interesting point of dissimilarity between epilepsy and hysteria is, that epilepsy much oftener attacks males than females, having the same relation to the former, as chorea has to the latter. Van Swieten states, that it is from this circumstance the synonym, *morbus puerilis*, originates, and quotes Hippocrates,* and Paulus Ægineta.† Celsus, probably following these, remarks the liability of young males to epileptic affections,‡ and Dr Elliotson adds his testimony to the same effect.§ It usually disappears, like chorea, on the accession of puberty. This general fact is important when taken in connection with the supposed functions of the cerebellum, as also that expressed in the phrase which has been attributed to Hippocrates or Democritus, *την συνουσίαν ειναι μίκραν ἐπιληψιάν*,‖ the developement of the full paroxysm during the *synousia*, and by onanism,¶ and its frequent heptaperiodic recurrence. Perhaps puerperal convulsions are allied.

The epileptic aura in connection with local hysterical neuralgia and neuralgic convulsions is worthy special notice. The phenomena of this aura are well known. It has been supposed to originate, firstly, from a diseased stated of the nerve in which it commences, and, secondly, from organic change in the brain or its coverings. With regard to the proofs of the latter, they are merely negative. The trunks of the nerves implicated have been seldom examined through their whole extent; while changes in the brain and nerves may take place during life of which there is no necroscopic trace. In proof that the aura originates from disease in the distal extremity of the nerve or in its trunk, we have several positive facts. A ligature applied to the limb affected will arrest both the aura and paroxysm. This remedial measure, as well as the destruction of the part in which the aura originated, is probably very ancient. Paulus Ægineta recommends a ligature to be applied during the fit, and escharotics in the interval to the part affected. "Curatio comitialis ex aliqua parte oborti. Quum symptoma futurum est, ubi senserint, partem sive manus sit, sive pes laqueo superpositam fortiter apprehendere oportet. In remissionibus autem curationem moliri, ex ustoriis medicamentis aliquod parti adhibendo," &c.[*] Galen arrested the paroxysms in a boy by a ligature.[†] Bonetus was equally successful, and records a case in which the part swelled when the aura was felt.[‡] Van Swieten expressly mentions destroying the nervous communication between the point at which the aura commences and the brain, as a means of cure. "Nullum amplius convulsionis adsit periculum, quia omne commercium inter cerebrum et nervum læsum sublatum est."[§] The use of the ligature is now practised on the continent,[||] and Dr Ellioston[¶] and Sir A. Cooper have recorded instances of its successful application. Dr Craigie has given a hypothetical opinion, that the presence of a morbid growth in the nerve is the material cause of the aura, in the twenty-ninth volume of this Journal, and mentions the case recorded by Dr Short,[**] who, by cutting out a minute painful tumour from the gastrocnemius, from which an aura proceeded, cured an epilepsy. Portal relates a similar instance;[††] and Dr Craigie quotes Mojon and Covercelli, as recently verifying these observations, both of whom found minute painful tumours connected with epileptic fits. Professor Mayer of Hanover cured a patient of epilepsy by amputating the thumb in which the aura commenced.[‡‡] The inference to be drawn from these facts is, that the disease of the nervous twig is the cause of the aura, and in some instances, probably the cause of the fit; probably, because epilepsy like other paroxysmal diseases, may be cured (as I have already shown,) as well as induced by strong mental emotion, the mental impression made by tying the ligature or removing the tumour, being the really curative means as in the case of the boy, quoted page 330. A ligature will sometimes arrest a paroxysm of ague. Dr Black's patient, by concentrating his attention, could prevent a paroxysm of *angina pectoris*.[§§] Upon the whole, then, we may conclude, that a state of the nervous system precedes each paroxysm, which is indicated by the sensation of aura in any nerve in which there is already organic or functional derangement. If no one nervous twig be more diseased than another, then we have the epileptic paroxysm without the premonitory sensation. It must be admitted, however, that the touch of a morbidly sensitive fibril may be the immediate or exciting cause of the paroxysm as readily as any other excitement, whether mental or acting on the peripheral terminations of the nerves, or, as when gasping is excited by pressure on the sternum.

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* De Aeris et. Locis. † Lib. iii. cap. xiii. ‡ Lib. iii. cap. xxiii.

§ Clinical Lectures in London Medical Gazette, vii. 482.

‖ Van Swieten Comm. apud Boerhaave, iii. 412.

¶ Medical Gazette, loc. cit.

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[*] Pauli Æginetæ, Lib. iii. cap. xiii.

[†] De locis affectis, iii. cap. xi.

[‡] Sepulch. Anat. Lib. i. Sect. vii.

[§] Comment. Apud Boerhaave i. 380

[||] London Medical Gazette, ii. 4 6.

[¶] Lancet, xi. 222.

[**] Medical Essays and Observations, vi.

[††] Cours d'Anatomie Med. iv. 247.

[‡‡] Med. Chir. Trans. viii. 250.

[§§] Ibid. vii. 75.

In *neuralgia* and neuralgic convulsions we have phenomena analogous to those of the epileptic paroxysm. There is the same general morbid affectibility, equally exalted, as in epilepsy, by quotidian or hepta-periodic causes of excitement, or by impaired functions of special organs. Any casual excitement also, whether originating in the mind, or on the mucous surfaces, may be the immediate cause of a paroxysm, and the predisposition is frequently hereditary. There is a species of neuralgia which answers to this description, but which frequently attacks males. This form ought to be distinguished from the neuralgic sensibility of the hysterical. It most frequently arises from mechanical irritation of a nerve, while that of hysteria may originate in mere vascular congestion. In the hysterical neuralgia, the whole nervous system is actively sensitive, in the other form, this sensibility, already existing as a dormant constitutional predisposition, is excited into action by local agencies. In the one, those medicines which relieve paroxysms of gout are very beneficial, but seldom so in the other. Sometimes the two forms of the affection seem combined in the same individual, as in the neuralgic stumps of females. In these cases re-amputation is seldom useful, on account of the excessive sensibility of the nervous system. Exercise in the open air, and mineral tonics, appear to have been the best remedies.

The *neuralgic convulsions* of the hysterical originate principally in this class of cases, and are sometimes followed by coma.* A very slight injury to a nervous fibril, as from the puncture of the lancet, or of a pin or needle, is sufficient to induce the local changes through which the general convulsions may be excited.† They are almost peculiar to the female, for convulsions are seldom excited in males having the neuralgic diathesis, and then only when depletion or other depressing agencies have produced an affectible state of the whole nervous system.

Subcutaneous tubercle is an occasional cause of hysterical and neuralgic paroxysms. We are much indebted to Mr Wood‡ for his laborious inquiries into the nature of this affection. It is a neuralgia excited by a small firm tubercle which involves a nervous twig, and generally a twig distributed to the skin. Like most nervous diseases, it principally attacks females. Of 36 cases collected by Mr Wood, 29 were females, five males, and two unknown. In 23 the tubercle was in the lower, and in 11 on the upper extremity. In the males it followed blows or punctures, in the females it originated spontaneously, and for the most part on the lower extremities. The neuralgic paroxysms and convulsions, of which these tubercles are the exciting cause, are subject to the same general agencies as other nervous diseases. The paroxysms may be excited by a slight touch of the tubercle, by a cold wind, by surprise, or any affection of the mind, (Swan.) They occur most frequently at night, (Hall, Wood, and others); during menstruation and pregnancy, (Bissett, Pearson); or any general indisposition or dyspeptic state, (Hall). Case 38 is an instance of this class.

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* On Morbid Local Affections of Nerves, 1st edition, p. 113, 117.

† Sir B. Brodie, Case in his Lectures, London Medical Gazette, xix. 248.

‡ Edinburgh Medico-Chirurgical Transactions, Vol. iii.

After the varied general remarks on the increased sensibility of the hysterical, it will be quite unnecessary to specify the local neuralgiæ. They may originate from a morbid change of structure in the distal end of a sensitive twig, or be developed by compression or irritation of the nerve in the foramen through which it passes, or by some tumour in close proximity with it, in any part of its course from the circumference to the centre. When the affectibility of the nerve is exalted, any slight cause of these kinds will excite neuralgic pains, and this exaltation of the affectibility may originate locally, as I have already shown, from any functional or organic derangement of the viscera. Sciatic neuralgia and the neuralgic knee, in diseases of the hip, is an illustration of these remarks. The hysterical knee originates, probably, in some excitement applied to the superficial branches of the anterior crural nerve, either as they emerge from the fascia, or (as I believe much more frequently happens), during their course within the pelvis. Some similar irritation applied to the supra-scapular nerve in its course through the foramen or notch of the same name, is the cause of the sub-scapular pain observed in diseases of the liver; the sensibility of the nerve being so exalted by the diseased state of the liver, as to render those impressions painful, which otherwise would not be felt, just as occurs in spinal tenderness.

These hysterical neuralgiæ and local affectibilities, then, may be divided into two classes. The one will comprise those originating in a nerve which has to pass through a foramen, or over or round a tendon or ligament; the other those implicating parts in physiological or anatomical relation with the ovaries, especially those which have naturally a special sensibility, as the glottis, rectum, &c. Amongst the latter may be enumerated all the various phenomena reviewed in the first part of the analysis, as convulsive cough, hydrophobic gasping, vomiting, neuralgia of the mammæ, sternum, &c.; and in the former, the neuralgiæ of the scalp and face, the nerves supplying which are, more than any other, exposed to every variety of irritation in their course to the cerebrum, through the complex and highly developed osseous structures of those parts.

Paralysis.—I shall very briefly notice the phenomena included under this head. The impairment of the external senses will come again under review, and a few general remarks on loss of muscular power will only be necessary. The latter most frequently affects the abdominal muscles and viscera, and the lower extremities, then the facial nerve and the upper extremities. The senses are also subject to paralysis in different degrees of frequency. Amaurosis is much more frequent than deafness, deafness than loss of taste, and the latter than true anæsthesia.

With reference to functional paralysis, as well as chorea, * tetanus, neuralgiæ, and partial agues, it may be remarked generally, that in females it much more frequently affects the left side than the right. This is in accordance with my previous remarks on the deficient developement of the left side organs in the fœtus, and in animals generally. Amaurosis, however, more frequently affects the right eye than the left, so in case 6 there was a discharge from the right ear, paralysis and pain on the left side. Case 30 is very interesting, from its presenting during a paroxysm a series of phenomena in regular sequence. First, the right side of the body is affected with spasms, and blood flows from the right arm and leg; then general convulsions supervene, and on the cessation of these symptoms, the left side is found in a state of tetanic flexion. It requires no great stretch of imagination to conceive, that the immediate cause of the last symptom was situated on the left half of the cerebro-spinal centre, below the crossing, while the cause of the spasms and flow of blood from the right side was situated in the left hemisphere of the cerebrum or cerebellum above the crossing. It may appear contrary to the general law of retarded or less perfect developement occurring to the left symmetrical half of the body, that in the left hemisphere the voluntary powers originate which move the stronger or right half of the body. This is an exception which will lead to some important results. The following inferences may be deduced;—either that the origin of muscular power must be below the crossing, or that the nervous matter immediately subservient to muscular motion does not cross; in short, that while cerebral paralysis commonly depends on lesion of the opposite hemisphere, automatic movements may be excited in one side of the body by lesions in the hemisphere of the same side, which is the fact. † I shall probably revert to this part of the subject.‡

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* Edinburgh Medical and Surgical Journal, xlii. 229.

† Muller's Physiology by Baly, p. 842.

‡ I noted 103 cases related or quoted in Dr Abercrombie's work on Diseases of

Lateral curvature.—I have already remarked (page 62) that local hysterical paralysis will give rise to distortion of the foot;[*] it may also induce lateral curvature of the spine. This deformity is ascribed by writers in general to unequal muscular action, and the curve is almost invariably to the right side.[†] Contrary to the more common opinion, I conceive the muscles of the right side are the strongest; those of the left being affected with partial paralysis, and so rendered unable to resist the greater force of traction to the opposite side. In accordance with this explanation are the facts mentioned illustrative of the greater liability of the left side to disease, the natural curve of health, and the pathological researches of Mr Shaw, who found the muscles on the con-

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the Brain and Spinal Cord with the following results:—Males 59, females 34. Disease of right side of cerebrum 37; of both sides, but to greatest extent on the right side, 2; of left side, 29; of both, but most on left side, 7; of both equally, 9. Cerebellum, right lobe, 3; left, 11; right of cerebrum and left of cerebellum, 1; right side of both, 1; both lobes of cerebellum, 4.

Disease of right side of brain,	palsy of left side of body, -	18
	palsy of right side, -	3
	without palsy, -	13
	with general palsy, -	1
		35
Disease of left hemisphere,	palsy of right side, -	35
	palsy of left side, - .	1
	with general palsy, -	1
	without any paralysis, -	8
		25
Disease of one side of brain,	palsy of opposite of the body,	43
	palsy of same side, -	4
	with general palsy, -	2
	without palsy of either side,	21
		70

In 11 cases in which the left lobe of cerebellum was diseased, there was paraplegia in 1, paralysis of right side in 2, of left in 1, and no paralysis in 7.

The cases arranged with respect to age, side, and sex.

		Right Hemisphere.		Left Hemisphere.	
Age.		Males.	Females.	Males.	Females.
Under 12,	-	3	3	3	2
18,	-	3	–	3	2
28,	-	3	2	2	3
50,	-	10	3	9	7
Above 50,	-	5	3	7	1
		24	11	24	15

These numerical results may lead to the salutary conviction of how little we yet know of diseases of the nervous system. The most remarkable fact is, that, in 28 of 81 cases of diseased hemisphere of cerebrum or cerebellum, there was no paralysis; being more than one-third.

[*] Mr Shaw in Further observations on the Lateral Curvature of the Spine, p. 185, 8vo, London, 1825, gives a case.

[†] Mr Baynton on Diseases of the Spine, p. 42, 8vo, 1813. Mr Shaw on the Nature and Treatment of Distortion of the Spine, p. 58, 8vo, London, 1823.

vex or right side to be the largest, and the nerves going to those of the concave or left side diminished to less than one-half of their natural size.[*] The treatment, then, which directs shampooing and other local remedies to the right side, as being the weakest, is not only useless, but positively injurious.

Amaurosis.—The optic nerves have a very intimate connection with the two extremities of the cord. Thus injuries of the facial branches of the fifth will cause amaurosis in the eye on the opposite sides to that injured.[†] Difficult dentition, caries of the teeth, abscesses of the jaws, and salivation have been mentioned as being frequent causes of this disease.[‡] Derangement of the stomach, diarrhœa, constipation, and excessive indulgence in amatory pleasures are very generally added to the catalogue. Mental emotions, according to most writers, frequently originate amaurosis. Those who are subject to intermittent attacks have the premonitory symptoms common to all paroxysmal nervous diseases. Intermittent ophthalmia or neuralgia is occasionally hepta-periodic.[§] The connection between the optic and respiratory nerves is curious. A strong glare will excite sneezing, and the sensation of light is occasionally the excitant of the respiratory movements.[||] The relations of the conjunctivæ have little in common with those of the optic nerve.

Anæsthesia.—This in a chronic form, and alone, is rarely a symptom of hysteria; it is, however, very common in coma, catalepsy, and somnambulism. Various considerations render it exceedingly probable that the sense of touch has a special point of connection with the brain, strictly analogous to that of the other special senses. The faculty of perceiving resistance, and consequently of judging of weight, is seated in the skin, and is dependent on the sense of touch; so that in cases of anæsthesia, muscular movements are regulated by the eye. Dr Elliotson[¶] supports a contrary opinion, and cites Brown, Wells, Sir C. Bell, Spurzheim, and Weber, in support of the opinion, that the sense of appreciating weight and resistance is seated in the muscles. The cases of complete anæsthesia recorded by Dr Yelloly, I think, set the question at rest. In one case the individual, it is stated, "can grasp pretty firmly; but in holding any thing he is apt to drop it, if his attention is at all called away."* Of another it is said, "on turning her eyes aside, she often drops glasses, plates, &c. which she holds in safety as long as she looks at them."† According to Weber, if the hands of a blindfolded person be supported on cushions, and unequal weights placed on them, when the difference is great it will be felt; but if it is small, it will not be noticed until the hands are raised,—"till the muscles feel what resistance they have to act against," according to Dr Elliotson. This is an inaccurate conclusion. Let an individual rest the back of his hand on a cushion, and a weight be placed on his fingers, the pressure of the weight on the skin is diffused while the fingers are at rest; but let the extensors of the fingers act, and the weight be raised by a muscular effort, and we have the skin compressed by two powers against the bony prominence of the fingers; the compressing force being that of gravity in the weight, and of muscular contraction in the resisting muscles. The conclusion, then, from Weber's experiments should be, that a small difference in weight was not appreciable, until the pressure on the skin of the fingers was localized and increased by raising the weight. Dr Wells' remarks do not seem to bear upon the point in any degree. The perceptions of position, perpendicularity, and amount of muscular effort, are analogous to many morbid sensations, as vertigo, feelings of flying, of being lifted up, being lighter than usual, &c.; all which are seated in the encephalon. Besides, it is contrary to all analogy, that a special sense should be located in muscular structures; they are constantly found on mucous membranes. I coincide, therefore, with Sir C. Bell ‡ and Breschet, § who consider that the organ of touch is not a mere nerve, but is a special apparatus placed on the skin, and that the sense of touch is a special sense as much as seeing or hearing. The touch, like the latter senses, guides, and is assisted by muscular effort.

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[*] Ibid. p. 68. The views of Dr Stromeyer, who considers paralysis of the respiratory muscles, particularly of the *serratus magnus*, a cause of lateral curvature, are also in accordance. British and Foreign Medical Review, January.

[†] Travers' Synopsis of Diseases of the Eye, 152.

[‡] Cooper's Surgical Dictionary, article Amaurosis. 6th Edition.

[§] Dr Bostock's case in Medico-Chirurgical Transactions, iii.; another in Journal Complem. January 1830.

[||] Jüngken (Die Lehre von den Augenkrankheiten) was acquainted with two persons who were instantaneously seized with asphyxia, if light were shut out; or awoke in the night in a state of suffocation if their taper was extinguished. A similar case is mentioned by Laennec. (Forbes' Translation, p. 414.)

[¶] Human Physiology, Part ii. p. 527.

REVIEW OF SOME ANOMALOUS PHENOMENA.—Under this head I propose to consider various symptoms of hysteria, the existence of which has been denied or is doubtful.

Catalepsy.—In 1683, Laurence Bellini published a quarto volume on various subjects, in which he described catalepsy. Since that period cases of the disease have been continually recorded by various observers; and its existence is now established by the most complete evidence. I shall notice it very briefly. It consists essentially in coma, with an automatic contraction of the muscles when external force is applied to the limbs; that is to say, in whatever position a limb is placed, its muscles contract and maintain that position. Yet in general the contraction is not energetic, for a very slight force will overcome it and the position of the limb be easily altered. In catalepsy the extensors and flexors both act; in sleep and coma the extensors are paralysed, and the automatic contraction of the flexors is so slight that it cannot resist the force of gravity. Automatic contraction of the flexor muscles is a natural quality; the sleeping position of the common fowl illustrates this fact, as well as the contraction of the flexors in paralysed legs; it is most frequently observed in the lower extremities; but the action of the flexors and extensors of the upper extremities appear to be physiologically different. In cases of paralysis of the upper extremity during the waking state, the flexors act and flex the fingers and thumb on the palm; but occasionally on awaking from sleep the patient finds his fingers in a state of tetanic extension. I have observed two instances lately. Now in catalepsy, we have automatic action of both flexors and extensors; so that there is a due antagonism established at every change of position, and the position is maintained unless a greater force is applied than the muscular contraction can resist. This muscular contraction will of course vary from almost a tetanic to a paralytic state. A case observed by Mr Ellis of Dublin[*] illustrates very well the connection between tetanus and catalepsy. In the common fowl, the flexor action of the muscles of the toes is antagonized by the weight of the body, and probably the proper excitant of this action is pressure on the skin of the foot, as is supposed by Mr Grainger, to be the excitant of the progressive movements in general.[†] In brown study, or reverie, the eye is fixed by a muscular action very analogous to the cataleptic. Have not the flexor muscles some special connection with the spinal cord, as supposed by Bellingeri? Tetanic flexion of the fingers and toes is much more frequent than tetanic extension.

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* Medico-Chirurgical Transactions, iii. 95. † Ibid. 99.

‡ Bridgewater Treatises, iv. The Hand, its Mechanism, &c. 2d. edit. 178.

§ Nouvelles Recherches sur la Structure de la Peau. 1835.

What is the state of the nervous system in catalepsy? In an exquisite instance, the functions of the body are performed with the least possible display of vitality. The heart almost ceases to act; the respiratory process seems interrupted; vital heat is diminished, and secretion arrested. The system is in a state of torpor analogous to that of the hybernating animal, and the vital conditions of the two states are probably the same.

The causes of catalepsy need not be enumerated. All violent emotions and depressing agencies, especially if operating on the female at the periods when her natural affectibility is exalted by the generative nisus, poisons, and malaria,[*] will excite the disease. It has also an intimate connection with other diseases of the nervous system, as coma, epilepsy, ecstatic delirium, and somnambulism; each disease occasionally appearing in succession in the same individual. Dr Prichard particularly notices this fact, and cases 8, 35, 63, 64, 65, are illustrative.[†]

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[*] Lancet, ii. for 1835, p. 129

[†] Observations on the Spinal Cord, p. 113, 114, 8vo, 1837.

Combined or connected movements.—Under this division I propose considering a class of phenomena, in which the muscular system performs a series of involuntary acts without spasmodic action. These may be arranged under five heads.

1. Involuntary combined movements, which are excited or accompanied by a sensation; sneezing with profuse lachrymation, hiccup, yawning.

2. Movements which in health are excited by or accompany a feeling or emotion; laughter, weeping, sobbing, ejulation.

3. Combined movements in a definite direction, and originating in an impulse; choreal pronation and supination; rotation of the head, or of the whole body; rapid movements forwards, or backwards; inverted perpendicularity, as when the feet and legs are directed upwards.

4. Rhythmical movements; those excited by an involuntary impulse, or by an idea in connection with a measure of tune, mechanical repetition, true chorea.

5. Movements from what has been named a propensity to imitate, comprising most of the preceding. I shall briefly notice all in detail.

Hiccup and sneezing are combined convulsive movements, the former seldom being accompanied by a sensation; in both the respiratory muscles are, however, implicated, as in all those movements comprised under the first and second heads. They have this also in common, that they frequently form part of a common hysterical paroxysm,—ejulation, or the utterance of loud cries, being excepted. This last symptom is occasionally observed in other nervous and convulsive diseases, and in some cases of poisoning; it appears altogether automatic. The movements under the two first heads are also observed to have a periodical occurrence.[‡]

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[*] Sauvages, Nosol. Method, Tom. i. 827. Stoll, Ratio Medendi, pars vi. p. 215. Vien. 1790, and quotes Rondeletius.

[†] Others may be found under the following references. Pomme on Hyster. and Hypochon. disorders, by Berkenhout, 4th ed. p. 63. Sauvages, Nosol. Method. i. 825, ii. 207. Van Swieten, apud Boerhaave (from Hollerius,) iii. 319. Darwin, Zoonomia, 3d ed. i. 32. Gooch on Diseases of Women. London, 1829, p. 117. Medico-Chirurgical Review, New Series, iv. 201. v. 203, xviii. 207. Medico-Chirurgical Transanctions, iv. 17. Medical and Physical Journal, 1828. Annali Univ. di Med. October 1830.

[‡] Case 50 is by no means a solitary instance of periodic hiccup. Höchstetter and Riedlin relate histories of quotidian yawning in girls; in some, the yawning

The connection between grief, lachrymation, sobbing, and globus, is well known. In an entry in his journal, soon after the death of Lady Scott, Sir Walter remarks, " I do not know what other folks feel, but with me, the hysterical passion that impels tears, is a terrible violence—a sort of throttling sensation—then succeeded by a state of dreaming stupidity, in which I ask if my poor Charlotte can actually be dead ;"—a graphic description of the effects of grief. The relations between the latter and immoderate laughter are not so obvious. Dr Crichton observes, " that many (I am almost tempted to say most people) now and then have been inclined to laugh when a person has first begun to relate some misfortune. Nay, a more unaccountable circumstance of this kind is, that many people, when they have to tell us of the death of another person, feel themselves often inclined to laugh at the moment they begin to speak of it ;"[*] and these individuals, he adds, are possessed of fine feelings. I knew two brothers, who had experienced poignant grief from the death of a sister. The day after her interment they walked to her grave, a distance of two or three miles, to indulge their feelings, and on their return were seized with an irresistible propensity to immoderate and loud laughter, which continued for some time. I think this kind of laughter is analogous to the perverted feelings of the insane, when love is changed into hate, devotional feelings into the most scornful contempt for religious things, modesty into obscenity, &c. Of this character are the cases (No. 55), quoted from Wesley's Journal, and the gaiety displayed by individuals about to die on the scaffold. Shakespeare has not overlooked the latter :—

> " How oft, when men are at the point of death,
> " Have they been merry ? which their keepers call
> " A lightning before death."—
>
> Romeo and Juliet, *Act* v. *Scene* iii.

In these instances, the mental powers must have suffered from powerful emotions, confinement, and deficient food, however great they may have been previously. The gaiety is perhaps really a morbid state ; I do not recollect an historical instance of it, which was not preceded by the depressing agencies mentioned. I think these remarks are of importance, because they point out a set of psychological relations hitherto uninvestigated.

Combined movements in a definite direction.—The instances of this kind may be arranged in two divisions, accordingly as the whole or parts of the body are affected. It may be observed

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was so vehement as to luxate both jaws. (?) (Sauvages, op. cit. i. 633). A case of quotidian laughter is quoted in Medico-Chirurgical Review, New Series, i. 485, from Gaz. de Santé, No. xviii. I think there is an instance of periodic sneezing in a recent volume of this Journal ; Sir B. Brodie relates an instance in which it was hepta-periodic, (Medical Gazette, xix. 249.)

[*] Inquiry into Mental Derangement, ii. 155.

generally of both, that their proximate causes have been for the most part functional in females, and organic in males; just as happens in common chorea. The cases depending on organic diseases need not be noticed, except as pointing out the seat of the affection.

Of seven cases, the details of which I have carefully perused, five occurred to females under puberty.* In one the patient was a highly hysterical female, aged 42, subject to epileptic fits, and the choreal movements were not strictly combined; † in the other, ‡ the patient (a female) was aged 23, and had been indisposed with a variety of complaints for seven years, so that the real period of the commencement of her disease was that of puberty. The leaping ague of Angus-shire was most common before puberty, that is, between 8 or 9, and 15. This general fact renders the affection analogous to chorea. The paroxysms were accompanied with other nervous affections, as tremors, cephalæa, epilepsy, coma, aphonia, hiccup, ejulation, (Armstrong, Anonymous), &c.; in some consciousness was abolished. Constipation is a symptom common to all except Armstrong's cases. Paroxysms were in general easily excited by slight agitation of mind, and the individuals were exceedingly susceptible of every kind of impression; in one, during the paroxysm, the very idea of being touched caused a sensation of horror. (Hunter). Forcible arrest of the movements would excite the fiercest rage. (Watt). In Mr Crichton's case, the attack was connected with a fright from the entrance of thieves into the house; during the paroxysms the young lady secreted her trinkets. The most constant affection was some derangement of speech. The leaping ague was thought hereditary. With regard to the particular set of movements, no one seems peculiar to a special state. In Dr Watt's case, vertical and lateral rotation and inverted perpendicularity were observed in succession,—an apparently inverted sense of relation to the plane of the horizon preceding the latter. In the Angus-shire ague, if the progressive movements were prevented, the patients would leap upwards, and rotate round the rafters of the house with a motion resembling that of the fly of a jack, (Sinclair). Retrograde movements were not observed in any of the cases, and the only one I have read of is that mentioned by Majendie, § as having been shown to him, and at the Royal Academie of Medicine, by Dr Laurent; the patient was a hysterical female. If we trace out the analogical relations of these affections, their singularity is in some degree diminished. Dr Elliotson remarks,* that vertigo frequently attends them, whatever be their variety; and very justly adds, that vertigo cannot be their cause. It however appears to be a sensation, (that of turning round,) originating in the same parts as do the rotatory movements. Let an individual revolve from twelve to twenty times on as small a circle as possible, and he will find on ceasing, that, conjoined with the vertigo excited, there is a propensity to rotate, by which he will be irresistibly compelled to perform one, two, or three additional revolutions; so that the temporary state of the encephalon under these circumstances probably resembles that of the rotatory paroxysm. Waltzing in a small room causes the same phenomena. The propensity to move forwards has its analogy in the disease which sometimes affects hardly-worked horses. When walking twelve or fourteen miles at full stretch, I have first experienced great fatigue, and then an urgent desire to move forwards in a straight line; so that any thing which has compelled me to stop a moment, or to deviate, has caused a painful sensation.

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* Dr Armstrong, Medical Commentaries, ix. 317, anonymous, Edinburgh Medical and Surgical Journal, iii. 434. Mr Crichton, xxxi. 299. Dr Watt, Medico-Chirurgical Transactions, vol. i. Dr Alexander, Lancet, 1827–8, i. 393.

† Dr White, Medical Commentaries, iv. 326.

‡ Mr R. Hunter, Edinburgh Medical and Surgical Journal, xxxiii. 261.

§ Elem. Comp. of Physiology, trans. by Milligan, 4th edition, 191.

In Dr Watt's case, the patient rested on her occiput, and, raising her feet to the roof of the bed, let them fall again, and this she repeated twelve or fifteen times a minute for fifteen hours in succession. This inverted perpendicularity is analogous to a sensation perceived after sleep, as if the feet were placed where the head ought to be, which is sometimes followed by attempts to rectify the supposed improper position. It is almost peculiar to children on waking. I have occasionally experienced it, and nothing short of complete consciousness ever removed the feeling.

Great facility in balancing the body, (Sinclair, Crichton,) or in climbing (ibid.) as leaping upon and sitting on the top of a door, or running round the edge of a table, have been observed in cases of somnambulism, as well as in these.† Something analogous is the impulse to place the centre of each foot when walking, precisely on the line of junction of each flag on the flagged way, or of each brick or board on floors, experienced by some individuals. They may be easily known in the streets by the position of their head, and their strides of unequal length. The darting of the finger at a given point (Case 61,) &c. are phenomena of the same class.

The sensation of the body being lighter than usual, perhaps depends on a sense of diminished muscular effort combined with some degree of anæsthesia. After closer reading than usual I have felt on lying down, as if I was floating buoyantly down a stream. The same sensations have been induced by camphor.[*] John Hunter, after much mental anxiety, experienced a feeling of being suspended in the air, of his body being much diminished in size, and of every motion of the head and limbs, however slight, being both very extensive, and accomplished with great rapidity.[†] If these sensations had been a little more intense, probably rapid combined movements would have followed. I conceive that the whole of this class of motions and sensations originates in the same central parts of the nervous system. Pathological anatomy, and the experiments of Rolando, Flourens, and Majendie have thrown considerable light on the subject.[‡]

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* Human Physiology, 5th edition, p. 430.

† Dr Elliotson has collected a number of interesting examples of somnambulism, those at p. 643, sqq. of his Human Physiology, 5th ed. are illustrative of these forms of chorea.

In some cases the combined movements consist in a regular and rapid flexion and extension, and pronation and supination, so that the parts of the central nervous system affected are in some way connected with muscular antagonism.

Mechanical repetition ; rhythmical movements.—The consideration of these is but a step higher in a continuous chain of phenomena. Whe have traced infantile convulsions to common choreal jactitation, the latter into the combined movements just investigated, and the latter, it may now be observed, are generally connected with rhythmical chorea, or with combined movements repeated mechanically. In case 61, flexion and extension, pronation and supination, *malleatio*, propensity to leap upwards, and true rhythmical chorea appeared in succession in thesame individual. The same phenomena are here observed somewhat more complicated by being in relation with a measure of time.

As it would be, therefore, impossible to do justice here to this subject, I shall make a few general remarks only. An impulse to rhythmical movement is common to man with many animals. It may be observed in birds. Dogs and horses will trot in the most regular time. Children delight in measured movements, as may be observed daily in their sports, or when congregated round the hurdy-gurdy. The conductors of infant schools have made this circumstance extensively available for the purposes of instruction, as any one may see by attending them. I observe few individuals can walk out of time when a street organ is grinding a suitable tune in their hearing. The propensity to mechanical repetition excites the simplest of rhythmical movements. A good illustration is presented by the aukward practices in which some people involuntarily indulge of wagging one leg across the other, drumming with their fingers, (but not to a tune,) hitching up a shoulder, drawing their hand across their chin as if for the purpose of ascertaining whether the beard be growing. Any one who will take the trouble to time the movements of these social gadflies, will find that they are done at distances of time precisely equal. People in general are not aware how rhythmical our actions are. Darwin has shown that verses may be divided into the bars of triple or common time.* The same observation may be applied to the prose composition of many writers; Johnson's sonorous stately style is an instance. Darwin remarks "some prose has its melody and even measure."† Most public speakers talk and gesticulate rhythmically, and also individuals in animated discourse. Every form of muscular movement may be repeated mechanically. (Cases 59, 61.) The tic-tac sounds (Case 60,) probably originated primarily from the patients having been constantly in the room with a loudly ticking clock or time-piece; it is analogous to a "tune dwelling on the mind," (Case 61,) and to the secretiveness manifested during a paroxysm by Mr Crichton's patient who was frightened by thieves. People who have heard a pleasing air at a concert will be constantly humming it for weeks after.

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[*] Orfila Toxicol. Gen. ii. 406.

[†] Life, in Works by Palmer, Vol. i. p. 62.

[‡] Majendie, op. cit. loc. cit. Elliotson, op. et. loc. cit.

Tarantism.—I have shown already that animal, mineral, and vegetable poisons, will give rise to many of the phenomena of hysteria; and in this disease we have an additional illustration of the fact, the poison of certain arachnidæ having the effect of exciting a propensity to choreal movements, dislike of colours, &c. Case 62 is by no means a solitary instance, as is evidenced by the history of the *tarantati.* Just as arsenic, belladonna, and other poisons, produce various symptoms, according as the dose, the individual's idiosyncrasy, or other circumstances vary, so also does the poison of the tarantula; it does not necessarily excite true chorea, no more than arsenic necessarily excites vomiting. A young Tuscan, aged 15, was bit on the second toe of the left foot by a tarantula. The toe inflamed, the patient's penis became erect, the abdominal muscles assumed a state of tetanic contraction, the extremities were convulsed, the countenance had an expression of terror, the skin was cold and moist, the strength prostrated, and there was an irresistible tendency to sleep. The patient was cured by stimulants.‡ These symptoms, with one or two exceptions, are common to several animal poisons. No mention is made of the state of the throat, which is generally the part in which uneasy sensations are first felt in these cases. It cannot be denied that numerous errors are mixed with the medical histories of the effects resulting from the bite of the tarantula. But Baglivi's essay § on the subject appears to me to possess the same cautious philosophical character as his other works. He remarks, that the symptoms of tarantism are remarkably analogous to those of melancholia, chlorosis, and similar diseases (Cap. i.) He shows that the Tuscans are "macilenti, impatientes, iracundi, insomnes," &c. (Cap. ii.) That the tarantula produces its most remarkable effects during the hottest days of summer; that only those which are in the burning plains are poisonous; that if it be removed to a colder climate it becomes harmless (Cap. v.); that different species of the insect produce different symptoms (Cap. vi.); that the bite of the scorpion produced the same effects, and consequently, that tarantism was ascribed to it by the old Greek writers and the vulgar (Cap. vii.) The *tarantati* are usually females (Cap. vii.) If the patient does not dance but recovers, the disease returns the next year, and he is affected with yellowness of skin, febricula, loss of appetite, oppression at the epigastrium, &c.; and if he eat mutton, cucumber, or melon, he is immediately seized with a sharp pain of the stomach. (Cap. vii.) Baglivi made a tarantula bite a small dog on the lip; the dog died comatose on the fifth day. The symptoms first observed are those of a malignant fever (cum coagulatione;) there are sense of strangulation, and an almost fatal depression of the vital powers; suffocation seems impending; the lips and cheeks are livid (Cap. vii.); the wound is surrounded with a livid circle; there are numbness and tremors of the limbs, or great sensibility of the surface; aphonia and spasm of the tongue (Cap. xi.) The bite of the *Uvea tarantula* is followed by pain and swelling of the bitten part; spasms, rigors, and general cold sweats; aphonia; frequent vomiting; dyspnœa, and sense of impending suffocation; tympanitis and erection of the penis, with the other symptoms just mentioned. (Cap. vi.) In all these statements there is nothing marvellous.

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* Loves of the Plants, Interlude iii. † Ibid. Interlude i.

‡ From Osservatore Medico in Lancet, Vol. ix. p. 129.

§ Disertatio de Anatome, morsu et effectibus Tarantulæ, in Op. omnib. Lugdun. Batav. 4to, 1733.

Then, with regard to the rhythmical chorea, it appears that the patients do not show the propensity to dance unless music be played in their hearing, and then each patient must hear his own favourite tune; so that the musicians have sometimes to play three or four tunes before any effect is produced. Rapid tunes are the most enlivening to them (Cap. x.) as they are, I suppose, to most dancers. The effect of the music is first to mitigate the symptoms; the patient then moves his fingers, next his hands, feet, and legs, and at last leaping up, begins to dance, which he continues to do for a length of time without weariness. A slight discord (of which country clowns, previously quite ignorant of music, become very susceptible) will excite constriction of the chest, gasping, and sobbing. The sight of anything black will have the same effect; but that of naked swords, or of scarlet, red, and blue, gives them pleasure (Cap. ix.) Sometimes the patients show symptoms of nymphomania, or run forwards, or revolve on the ground (Cap. vi.), appear to be intoxicated, or as if they had lost the use of their senses; they do not notice their friends, &c. (Cap. ix.)

I do not see anything so very marvellous in these symptoms. They are, in fact, quite analogous to many hysterical and toxicological phenomena. We have the heart and respiratory system being paralysed by a poison, just as occurs after a large dose of opium. The affectibility of parts of the nervous system is exalted by the same agency; and the proneness to rhythmical movements is analogous to the increased susceptibility of the effects of certain colours. It is readily excited into action by suitable music; and dancing, by keeping up the action of the heart and vascular system until the poison is eliminated, does that for the tarantati which the muscular movements excited by nettles and stripes effect for the narcotized. I think this means of cure might be made applicable to other cases of poisoning, as by the bites of venomous reptiles, and by some vegetable poisons, particularly belladonna and stramonium. It would be of importance to commence the treatment early, to select a favourite air, and to have it performed in quick time on an instrument connected with old or familiar associations, as the bagpipes, fiddle, or drum.

The inhalation of vapour of ether excites gay delirium. Nitrous oxide excites laughter and beautiful dancing, but a disposition to fight, also, in some individuals of pugnacious propensities. I have witnessed both effects in the Chemical Theatre of London University College.

Endemic Chorea.—Sauvages gives instances of chorea being endemic in Africa and various parts of Germany.* The leaping-ague of Angus-shire is probably of the same character.

Imitated Movements.—All these various movements may be imitated. An individual yawns, and all around him yawn; one wags his leg, and his neighbour's wags too. Of fifteen men I observed seated on a bench at a public sale, six were performing mechanical or rhythmical movements. M. Chevreul wished to know whether it was true, as he had been informed, that a pendulum formed of a heavy body and flexible cord, oscillated when held over a certain body, although the hand be not moved. In a letter to M. Ampère, he states, that he found, when his eye followed the oscillating pendulum, he felt a sensation of a tendency to motion, which was satisfied in proportion as the pendulum described larger arcs. When his eyes were bandaged, the oscillations were very feeble.† This is the simplest form of imitated movements.

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* Nosol. ii. 231, sqq.

† Lond. Med. Gaz. xii. 830; and Dublin Jour. iv. 141. This is a very interesting paper on some muscular movements.

Those complicated with emotions are somewhat different. For the due developement of these there must be a predisposing state of the system; and this may be either natural, developed, or excited. It is natural to females and children, and constitutes the affectibility which I have already illustrated. It may be exalted or developed in males by all depressing agencies, and excited in both males and females by emotions. The orator who weeps or laments with the purpose of infecting his hearers, first prepares them by exciting certain emotions. If a stranger came to hear his harangue at the moment his tears were falling, the former would consider him very probably rather an object for ridicule than imitation. The infectious mirth of the social is very analogous. Let an individual join a laughing party, and he will think or say, a very little wit makes fun for them, and will scarcely relax his features. The convulsions of popular assemblies are not strictly imitative, since the affectible state, originating in mental emotion, must precede their acccssion.

Exaltation of the Mental Faculties.—It appears from the preceding remarks, that these variously combined movements originate in a morbid excitability of the natural faculties by which they are guided, which itself forms but a part of one general symptom,—a morbid affectibility. I shall not here consider the whole series of the psychological phenomena of hysteria, but shall merely notice those which are or appear anomalous.

Exalted Sense of Touch.—In connection with this there are only two faculties to be noticed, namely, of distinguishing individuals and colours by the touch.

The perfection to which the sense of touch may be brought by the blind is exceedingly illustrative of these various phenomena. Julia Brace is an inmate of the Deaf and Dumb Asylum at Hartford, United States, and is deaf, dumb, and blind. She recognizes the various inmates of the house by the touch and smell, and can distinguish a silver spoon among 120 of baser metal.* Casper Hauser's senses were all morbidly exalted; he could distinguish metals by the touch through paper and even oil-cloth.† There are differences in individuals not appreciable by our senses but distinctly so by inferior animals. In certain fevers, and in cholera, the touch of the patient excites a sensation very similar to an electric shock,‡ or that experienced by Hauser when touching metals; so that the recognition of individuals by the touch is clearly within the bounds of possibility. The perception of colours by the touch, remarked in some hysterical cases, (62,) is a faculty which has been repeatedly attributed to the blind. A very respectable medical gentleman has mentioned to me an instance of this kind which came under his own observation. It is not impossible that each colour may be connected with some molecular organization peculiar to itself, and perceptible by an acute touch. It is not a little remarkable that in Cheselden's oft quoted case of cataract, the first visual perceptions were imagined to be those of touch. To suppose, however, that the usual aids to vision, as convex glasses, can aid the touch, (as asserted in Miss Macavoy's case,) is absurd.*

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* Journal of a Tour through the United States, by E. S. Abdy, Fellow of Jesus College, Cambridge, 3 vols. 12mo, 1835, Vol. i. 229–230.

† Dublin Journal, v. 150.

‡ Dr Grieve, in London Medical Gazette, xiii. p. 593.

Can a somnambulist see with his eyes shut? This feat is not impossible; but the assertion that there may be sight without eyes, or hearing without suitable apparatus, is incredible. There is, I believe, not a single instance of any thing of the kind throughout the whole animal series. Most acute vision in the dark is not uncommon. Animals which prey by night see well in comparative darkness. Casper Hauser, could "read after sunset the number of a house at the distance of 180 paces, which in day-light he would not have been able to distinguish so far off. It was proved by experiments carefully made, that in a perfectly dark night he could distinguish different dark colours such as blue and green from each other."† The vision is rendered very acute by disease. Dr Bostock, while suffering from a remittent ophthalmia, could see the chairs and tables in a room in which other people had to grope their way.‡ The committee appointed by the Royal Academy of Medicine, to investigate Mesmeric phenomena, report of an individual who read while in Mesmeric somnambulism with closed eyes. "We remarked that the ball of the eye was in a constant rotatory motion, and seemed directed towards the object presented to his vision;" a very plain proof that the optic nerves carried the impressions to his brain, and not those of the skin covering his finger ends or epigastrium, and affording ground for a suspicion that imposition was practised.§ Somnambulists are said to read with their eyes even when firmly shut and bandaged.‖

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* The individual alluded to above could distinguish the colours of cattle by the touch; but all these instances must be received with great caution. A gentleman, resident near York, who is utterly blind, is very generally supposed to be able to distinguish by the touch, the colour of flowers, of which he is an amateur cultivator, and has great pleasure in showing to his friends. Medical and other friends, upon whose powers of observation every reliance might be placed, have positively assured me of the fact; yet I learn from the individual himself that it is a vulgar error. He informs me that he can readily distinguish the form of the flower, and from thence infers the colour. He thinks that the colour of dyed cloths might easily be ascertained from a difference caused in the smoothness of the wool by the dye.

† Dublin Journal, v. 147–148.

‡ Medico-Chirurgical Transactions, iii.

§ Isis Revelata, ii. 333. From this and later statements of the same kind, there seems reason to doubt all facts of this most extraordinary and unaccountable description.

‖ See cases quoted by Dr Elliotson. Human Physiology, 5th. ed. p 652.

Painful and agreeable perception of Colour.—This is a symptom more common in disease than usually supposed. It is occasionally the most prominent symptom in hysteria. The pleasurable perception of colour is one of the earliest phenomena of infancy. I am gratified by looking on a bright red or scarlet, or a gorgeous purple. The sight of a beautiful autumnal sunset affords me greater pleasure than musical sounds or sweet flavours; the sensation is analogous to that excited by the smell of a hyacinth. Lower animals have a painful and pleasurable perception of colours. Mackarel are caught by a bait of red cloth;* perch by bread coloured with red lead. A military friend informs me that the green snake of India will dart from the trees at the brass on the soldiers' caps, especially when glittering in the sun, as happens during a march. Scarlet or red is particularly obnoxious to bulls, vicious cows, turkey-cocks, and occasionally to horses. Vegetables thrive better in red or orange rays than in any other.† In hysteria, certain colours produce pleasure and pain, and evidently according to some general law. Dr Parry knew a lady who could not endure to look at any thing of a scarlet colour.‡ Dr Elliotson had a patient who was made so thirsty by being put into a ward full of red curtains, that she drank seven quarts in one day.§ In entasia lyssa the sight of vivid colours excites gasp; in tarantism black produces the same effect; in case 62, white and black caused pain; black, white, or yellow, were offensive to Dr Elliotson's patient.‖ Dr Parry knew a lady who could bear no light colour whatever, and whenever he visited her in white stockings he was presented with a black silk apron to cover them, so that black was not disagreeable.¶ Blue and green were agreeable to this lady, and also to Dr Elliotson's patient. Case 62 exhibited convulsive unnatural laughter at the sight of green or red; blue and red pleased the tarantati; Dr Elliotson's mermerized patient, O'Key, noticed particularly the "nice tidy" gentleman who wore white trowsers.**

There cannot be a doubt that these various sensations depend upon changes excited in the brain and nerves by the physical action of colours; and it appears equally certain that the perception of colour is a special sense. An individual may have acute vision, and not know one colour from another. I have known such an one. It may be observed, that, as colours have a species of antagonism in exciting pleasure and pain, so they have in other respects. After the eye has been long fixed upon a green surface, the colour appears dull and gray, but the eye becomes more susceptible of red rays, and views them with relief and pleasure; and if the eye have been long accustomed to the red, it becomes more susceptible of the green rays. The same relations exist between yellow and violet, and blue and orange.[*] Precisely analogous are the phenomena of accidental or complementary colours. The accidental colour of any particular colour is the colour exactly opposite to it, if the colours of the prismatic spectrum be arranged in a circle. A bluish-green is the accidental colour of red; a violet-red that of green. When the colour and its accidental are mixed together, white rays are produced. Sir David Brewster has mentioned an ingenious theory[†] in explanation, which is incomplete, because it does not explain why some individuals cannot perceive the difference of certain colours. Upon inquiry it will be found that they cannot distinguish the accidental colour from the true colour. This is obviously true with respect to red and green, and the apparent exceptions are influenced by the same general law. The person described by Dr Nicholl[‡] called green, red. Dugald Stewart could see no difference in colour between the fruit and leaves of the Siberian crab-tree. To Mr Harris, shoemaker of Allanby, the fruit and leaves of the cherry-tree had the same colour. Mr Scott mistook full-red for a full-green.[§] Mr L. the individual with whom I was acquainted, called green red. It is curious, that, in cases of poisoning by henbane, objects have appeared to the patients of a scarlet colour,[‖] and that in some states of the nervous system green appears red, or green spectral spots are seen before the eyes.

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* Yarrell's British Fishes, Vol. i. p. 128, and hence a proverbial expression, "women and mackarel are caught by red."

† Dublin Journal, iii. 126.

‡ Cases of Tetanus, &c. p. 103.

§ Clinical Lectures in Medical Gazette, viii. 381.

‖ Ibid.

** The Lancet, 1837-8, ii. 282.

¶ Op. cit.

Other physical phenomena of light are under the same general law as regards the physiological action of colours, particularly those of dichroism. Crystals of potash and muriate of palladium are of a deep-red colour along the axis, and of a vivid green in a transverse direction. Mr Herschel observed a variety of sub-oxy-sulphate of iron to be of a deep blood-red colour along the axis, and of a light-green perpendicular to the axis.[¶] Analogous are the scarlet and green tints of the plumage of tropical birds. The two ends of the spectrum antagonize, also, as respects their illuminating, heating, magnetic, and chemical action,[**] and their effect on the vitality of vegetables.[††] The most curious analogy with respect to the pleasure and pain produced by colour, is that first noticed by Sir I. Newton, between the seven musical notes of the gamut and the primary colours.* He found that the latter are proportional to the former, or to the intervals of the eight sounds contained in an octave, or as follows:

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[*] Dr Darwin on Ocular Spectra, Philosophical Transactions, Vol. lxxvi.—Professor Muller, Physiology by Baly, p. 60.

[†] Treatise on Optics, being Vol. xix. of Lardner's Cabinet Cyclopædia, p. 305. This chapter on Accidental Colours is very interesting.

[‡] Medico-Chirurgical Transactions, vii. 477.

[§] Sir David Brewster, op. cit. p. 311.

[‖] Beck's Medical Jurisprudence, 5th edition, p. 883.

[¶] Treatise on Optics, p. 249. See also p. 184, for analogous facts in the action of doubly refracting crystals.

[**] Treatise on Optics, p. 88, and sqq.

[††] Dublin Journal, iii. 126.

Sol.	La.	Fa.	Sol.	La.	Mi.	Fa.	Sol.
Red.	Orange.	Yellow.	Green.	Blue.	Indigo.	Violet.	
$\frac{1}{9}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{9}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{9}$	

Dr Darwin argues from these facts, and the phenomena of occular spectra, that the same laws must govern the sensations of both colours and sounds.† In acoustics, every fundamental sound is accompanied by its harmonic sound; and the same term has been applied in painting to the accidental or complementary colours in the primitive colours, because they harmonize with each other. We can perceive an analogy in the sensations excited by certain sounds and colours. Scarlet has been compared to trumpet notes; and deep-blue or gorgeous purple is to me like soft deep base chords, such as are heard in some parts of Der Freischutz. From various considerations, I am inclined to think the general laws, of which we have here only a glimpse, govern others of our sensations, as of smoothness, softness, form, &c. Those versed in optics and acoustics would be able to cultivate this hitherto untrodden field with the most delightful success. An agreeable mixture of the shades of accidental and primitive colours might be called a chord; and a series of such, as in a painting, a harmony, &c.

Painful and agreeable perception of Sounds.—Sensibility to sound in general is analogous to sensibility to light. Various sounds, however, will, like colours, excite pleasure or pain. The painful sensation in the teeth, originating in very acute tones, commonly called, the teeth being on edge, is an instance.

No observations have been made sufficiently precise to illustrate this subject. Sounds must be distinguished from noises. Ideas may be excited by noises, which will react on the system, or parts of it. The noise of water dropping excites the idea of water, and this will cause the hydrophobic gasp.

Exalted Sensibility to Musical Sounds.—The faculty which originates this symptom is compounded of two simpler, namely, those which measure the time and the harmony of sounds. I think these have occasionally been confounded. An individual may keep excellent time, and have no ear for music. He probably confounds the fundamental and harmonic sounds, just as individuals see no difference between the harmonic or complementary and primitive colours. Baglivi states, that the tarantati are very susceptible of discords. A propensity to sing is a symptom in many cases of hysteria, mania, and poisoning. In hysterical somnambulism, a musical talent is occasionally developed during the paroxysm.* The same has been observed in Mesmeric delirium.† The power of composing poetry and music developed in the insane, (especially females,) and occasionally during sleep,—the quotation of poetic fragments by the hysterical,—"capping rhymes," and other analogous phenomena, belong to this head.

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* Optics, Book i. Part ii. Prop. 3, 6.

† Philosophical Transactions, Vol. lxxvi.

Exalted faculty of perceiving the lapse of Time.—I merely refer to this obscure subject for the purpose of noticing a phenomenon observed in mesmeric and normal somnambulism. Individuals under the influence of mesmerism have been found able to name the hour when a watch was placed to the nucha or epigastrium, under such circumstances that they could not have seen it. The solar plexus and sympathetic system have been dragged in to explain this and other circumstances. Independently of the impenetrable obscurity which must envelope any theory in connection with these structures, such appears to be unnecessary, at least so far as regards the watch experiment. People know what hour it is when asleep, without watch or clock near them. I have fixed an hour over-night at which to awake in the morning, and I have more than once awoke within two minutes, and frequently within five minutes, of the hour fixed. This has not occurred from habit, because I have awoke at three o'clock when my waking hour was seven. My experience in this respect corresponds to that of other individuals. For myself I can state, that I am utterly unconscious of any mental effort during sleep; and I have awoke at the hour at once, from what has appeared to me a most profound slumber. Various circumstances, I find, will modify the results. Intense anxiety to awake at the hour makes me anticipate it, and awake much earlier. Great mental or bodily fatigue, as might be expected, causes sleep to be prolonged beyond the hour. A plausible explanation of this mental power may be attempted, but its existence cannot be denied; and if we may arrive at a consciousness of the precise hour when apparently in the most profound slumber, there can be no reason for denying the possibility of its existence in the somnambulist. Some paroxysmal diseases will recur at the same hour most precisely. This occurred in Dr Watt's case of chorea.

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* Dr Abercrombie in his work on the Intellectual Powers, (4th edition, p. 294,) relates a remarkable instance.

† Dr Elliotson's patient O'Key, Lancet, 1837-38, ii. 282, and another, Human Physiology, p. 630.

Erratic Secretion.—The reader will be able to form his own opinion respecting the cases of erratic secretion of urine recorded in my first paper, Vol. xlix. p. 78. A highly respected medical friend assures me, that he rose from their perusal with the conviction that vomiting of urine was impossible. This opinion is worthy of notice, because it is calculated to stop all inquiry, and is contrary to those of physiological writers of repute, as Haller, Elliotson, Alison, and Müller. It is first asserted, that no well authenticated instance has yet been observed; and when cases 5, 7, 8, and 13, are referred to, we are assured that hysterical females will feign anything, and that well authenticated instances of deception more marvellous than these are on record. I certainly agree with the latter part of the opinion; indeed, so marvellous are they, that to me they appear utterly incredible, and to require a very great love of the marvellous and considerable credulity to insure a due belief in their truth. Some of them, when considered as cases of disease, are intelligible enough. Let the most wonderful case of Phineas Adams, a youth aged 18, who was lodged in jail for desertion, be viewed as a case of *catochus* induced by fright, and we can at once understand how thrusting snuff up his nostrils, and under his finger-nails excited no signs of sensibility; and how, that during the operation of scalping, he uttered only a groan when the bare cranium was scraped.* Bonetus relates the case of a deserter (George Grogatzi,) who was apprehended while making merry in an alehouse. He was so terrified that he gave a loud shriek, and immediately became speechless. When brought to a court-martial, he became immovable as a statue, and appeared unconscious of every thing which was going forward.† Phineas Adams was fortunately fed with wine and eggs when insensible; not so this poor fellow, for he died in twenty days, during which time he took no kind of nourishment. Dr Fitzpatrick‡ relates an instance of cataleptic *catochus* in a female, who was laid out for dead with the usual parade, such as lighting candles, tying her feet together, &c., of all which she was quite conscious, but could not move a muscle. Dr Fitzpatrick tried a variety of stimulants without success; but assures us that he at last made his patient wince by introducing some aquafortis and oil of vitriol into her nostrils; and that, by perseverance in a stimulant plan of treatment, in two hours she was enabled to open her eyes. This is not a solitary instance. No wonder Adams groaned when his cranium was skinned. It is inferred that this youth was feigning, because he was at work two days after his discharge; but we may conclude with equal justice, that the joy excited by his return home, and escape from scalping and from death as a deserter, acted as a remedial agent. It is painful to observe, that in a few instances in which the reported malingerers confessed the imposture, the confessions have a strong resemblance to those extorted from the victims of the Inquisition. Few men, when suffering under real disease, and cruelly tortured as impostors, would hesitate to criminate themselves, if by so doing they could at once escape a hated service and the remedial treatment.

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* Edinburgh Annual Register, Vol. iv. Part ii. p. 159; and Beck's Medical Jurisprudence, 5th ed. p. 18. Scraping the cranium causes a peculiarly painful sensation, which vibrates through the whole body.

† Medic. Septentrion. Lib. i. Sect. xvi. Cap. vi., quoted by Dr Crichton in op. cit. ii. 264.

‡ Med. Comment x. 262.

It is true that in hysteria we are peculiarly liable to be imposed upon.

If, however, we examine into the question of erratic urinary discharge as a matter of fact, the proof that it has occurred is rendered as complete as possible by the following table of recorded instances.

	Vomit.	Stool.	Ears.	Eyes.	Saliva.	Nose.	Mammæ	Navel.	Skin.	Tot.
In cases in the selection,	19	2	2	1	0	2	3	5	5	39
In cases from authors,	14	18	2	3	5	1	1	29	12	85
Total,	33	20	4	4	5	3	4	34	17	124

Cases are omitted under the head "stool" in which there was a known communication between the rectum and bladder; in two of the number given it was ascertained that no such communication existed.* The numbers in which the discharge took place from the umbilicus are not very precise. But if we suppose, that in the whole of the cases under the heads of stool and navel, there was a direct communication with the bladder, ureters, or kidneys, we have still 70 instances to account for;—were they all feigned?

Haller thought that almost all secretions may, under the influence of disease, be formed by each and every secreting organ, an opinion which I think will be found to be consistent with facts.† Müller denies its correctness; true vicarious secretion of milk for example, he observes, never occurs.‡ "The *excretions*, those matters which exist ready formed in the blood, and of which urea is an example, can alone, after the destruction of the excreting organ, be eliminated from the vessels in all parts of the body by the process of exudation."§ If this be a correct statement of the fact, the erratic urine would necessarily permeate the muscles and cellular tissue; no such case, however, is recorded; urinous effusions into the ventricles of the brain and cavity of the peritoneum have occasionally been observed, but these are free surfaces. The urea excreted by exudation from free mucous surfaces must necessarily be mixed with the proper secretions of those surfaces, and there might or might not be the urinary salts and colouring matter. Yet we find in some cases a fluid was vomited, resembling common urine even to the nebula. (Case 7.) Schenck relates the case of Prince Severinus of Saxony, who had suppression of urine, and who " sex aut octo horis priusquam animam ageret, urinam meram colore et odore, cuivis astante facile agnitam, evomuit." After death a fluid like the urine of dropsical patients oozed from the skin.* I think this history a little doubtful; it happened 300 years ago, when princes were occasionally poisoned. The following is, however, conclusive. A female died at the age of 14, who had from birth a continual discharge from the navel of a liquid resembling urine. On examining the corpse, the anus was large, and occupied the place of the vagina; the umbilicus was on the *mons*, the urachus terminated insensibly on the integuments, was very long and of unusual size; the umbilical vein was large, and the kidneys, ureters, and bladder were absent. The cause of death was gangrene of the liver, and suppuration of the pancreas.† The discharge from the umbilicus in this case was something more than simple exudation, and can only be considered as an excretion of urine from the urachus instead of the kidneys.

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* Acta Helvetica, Tom. i. Bonetus Sepulchret, Sect. 24. Obs. vi. § i. Vide Morgagni, Epist. xiii. Sect. 46.

† Elementa Physiolog. ii. 369.

‡ Manual of Physiology, translated by Dr Baly, p. 475.

§ Ibid. 431. I think no one so well fitted to give an opinion on this subject as Professor Müller; his researches into the minute anatomy of mucous structures are most important and invaluable, and it is consequently with considerable hesitation, that I have ventured to express my dissent from his opinions.

An extended history of secretion would amply confirm Haller's opinion. This, however, would be nothing less than a history of mucous membranes, which would comprise the facts regarding them in natural history, embryology, human and comparative anatomy, physiology, and pathology; and those which afford evidence, that there is some central part of the nervous system which constitutes a common centre of mucous structures.

I shall defer stating the inferences which may be drawn from the whole of the preceding statements, until I enter upon the last division of my analysis; and would only add, that I reserve to myself the right of abandoning, without prejudice to my argument, any opinions I have ventured upon, if more general facts prove their incorrectness.

(It may be interesting to the readers of Case 1 (Vol. xlix. p. 78,) to be informed, that H. O. lately returned to the Hospital and attempted to pass herself off as her sister, and when charged with the imposition most positively denied that she was the H. O. She was kept in the hospital three or four days until her mother came for her. I think it impossible to meet with a better marked instance of monomaniacal cunning.)

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* Lib. iii. Obs. 199.

† Dr Moulon, in Journal des Progrès, quoted in Lond. Med. Gaz. i. 710, 1828.

ART. III.—*Observations on Lithotrity, as practised in France, particularly by MM. Amussat and Labat.* By HENRY GRAHAM, Surgeon, Edinburgh.

WHEN I studied lithotrity in Paris, under M. Labat, from the opinions expressed to me by him and M. Amussat, his colleague, whose operations I have witnessed, I learned that these operators preferred the instruments of compression and percussion to the apparatus of M. Civiale, which acts by perforating the stone in various directions. M. Amussat has invented a very ingenious modification of M. Civiale's instrument, by adapting to the inner canula seven branches instead of three, so that not only the stone is more securely retained, when subjected to the action of the perforator, but the application of the long diameter of the calculus to the head of the drill is also insured; and if the stone be small, and moderately soft, it may be crushed between the perforator and the branches, without having recourse to the bow. Another advantage of M. Amussat's modification is, that when the perforator, which consists of a drill contained in a sheath with a perforating crown, has penetrated the stone, the external perforator is made to expand, by which means the calculus is split into fragments; the power required for doing so being small, from its being exerted from the centre towards the circumference. When the calculus is so hard, or large, as to prevent its being acted on by the instrument of compression and percussion, it is either repeatedly perforated by Civiale's instrument, so as to weaken its powers of cohesion, or split into smaller portions by that of Amussat, and then attacked, and reduced to sand by the lithotriteur. The instrument of compression and percussion, with which I have most frequently seen M. Amussat operate, was one which comprised the modifications of Costello, Le Roy d'Etiole, Segalas, Amussat, and Labat, upon the original invention of Heurteloup, which was a simple instrument of percussion. M. Velpeau appeared to prefer the less complicated instrument of Le Roy d'Etiole, which is one of percussion, and also of compression, directly applied by the hand of the operator.

M. Charrière, a very intelligent surgical instrument-maker in Paris, has the merit of effecting an important improvement in that part of the instrument which seizes the stone, and which, in Heurteloup's instrument, was, from the form of its teeth, extremely apt to engage and lacerate the coats of the bladder.

The apparatus which I have generally seen employed by M. Amussat when proceeding to operate, consisted of,

1*st*, Instruments of compression and percussion of various kinds.

2*d*, The instrument of M. Civiale with his (M. A.'s) modification.

3d, A large silver catheter, having a longitudinal septum, with a large orifice at its vesical extremity, corresponding to each of its divisions. This being introduced, after the pulverization of the stone has been proceeded with to a certain extent, and Read's syringe adapted to its superior division, a stream of water is made to pass through the bladder, carrying with it the sand and smaller fragments, and escaping by the inferior aperture of the catheter.

4th, A syringe for distending the bladder immediately before commencing the operation. The piston of this is graduated, so that the quantity of fluid thrown into the bladder, which must be distended as fully as possible, is immediately known by referring to the scale.

5th, M. Amussat uses a very beautiful little instrument, in principle nearly resembling that of M. Civiale, for the purpose of breaking down and extracting any fragments of stone which may be detained in the urethra.

6th, A species of vice for fixing the instrument while employing the hammer. It is (I think) the invention of M. Amussat. This is heavily loaded with lead, and is given in charge to two assistants. Any motion on the part of the patient is yielded to, so that there is no danger of injury to the bladder, or adjoining parts; and the operation may be performed in the patient's ordinary bed.

If there be any general or local irritability, or if the person be of a plethoric habit, MM. Amussat and Labat subject the patient to the antiphlogistic regimen, for a sufficient time before operating, with blood-letting, cataplasms containing hyoscyamus, or belladonna, over the abdomen, and repeated injections of infusions of these into the bladder, with the frequent introduction of catheters, gradually increased in size, with the view of accustoming the parts to the necessary instruments.

During the operation of breaking down the stone, the bladder is kept as much as possible distended with fluid; and for this purpose I have seen M. Amussat use an infusion of hyoscyamus, which appears to lessen the irritability of the organ, and enable it to contain a larger quantity of liquid than it could otherwise do without uneasiness.

I have seen M. Amussat, and also M. Velpeau, relieve persons from all symptoms of calculus, and that in some instances without apparently producing much pain, after five or six sittings, the duration of each being eight or ten minutes; some of the stones in these cases being as large as pigeons' eggs. They were, however, composed of the soft triple phosphate. M. Amussat's method of operating is as follows. The bladder being well distended with the injection, the lithotriteur is introduced, and when the beak of the instrument is felt to be fairly within the bladder, it is gently moved about in different directions, until the calculus be perceived. The extremity of the instrument is now to be placed upon the stone, and by making it glide slowly along its superior surface, and down each side, (always keeping the lithotriteur in contact with it, and observing that the point of the instrument is directed upwards,) some idea may be formed of the size of the calculus. The lithotriteur is now to be gently carried downwards, either on the right or left side of the stone, carefully observing that it is constantly kept in contact with the latter, and that the point of the instrument is directed perpendicularly upwards. While in this position, the jaws of the instrument are to be opened, by withdrawing the male branch with the right hand, the female branch being kept steadily in its relation to the calculus by the left. The beak is now to be slowly inclined to the side on which the calculus lies, so as to place it between the branches, which are now to be closed upon it, by cautiously pushing forward the male branch, the female part being still steadily retained in its position. The stone being now enclosed between the jaws of the lithotriteur, is to be secured in that situation by a turn of the compressing screw, if Segalas' instrument be used, or by pressing with the thumb of the left hand upon the little shield on the male branch of Le Roy d'Etiole's brise-pierre, if it be employed, while the instrument is grasped in the same hand. If the calculus be small, the beak, after separating its branches, and turning it, must be laid nearly horizontally, in order to ensure the stone being seized in its central part; if it be larger, the degree of rotation need not be so great.

If the prostate gland be enlarged, the *calculus* may be lodged behind it, in such a manner as to render it impossible to seize it in the ordinary way, or it may not even be felt from its being contained in a pouch behind the neck of the bladder. M. Labat, in such a case, recommends the patient to be shaken, his hips being at the same time raised. In this way he thinks the stone may be dislodged. If, notwithstanding this manœuvre, the stone cannot be seized in the ordinary way, the beak of the lithotriteur is to be turned downwards, when the calculus will be readily felt. The female branch is now to be moved a little beyond the stone, taking care to keep the male branch immovable. The upper surface of the calculus is now to be gently struck with the point of the male branch, in order to ascertain that the instrument is in its proper position. The male branch is now to be withdrawn in front of the calculus, and the points of both branches plunged into the pouch, and now, by approximating the jaws of the instrument, the stone will be seized, however deep the pouch may be; this part of the operation will be much facilitated by the introduction of the finger of an assistant into the rectum. The stone may now be removed into a more favourable situation for seizing it by its centre. The advantage, in a case of this kind, of the brise-pierre over Civiale's instrument which is straight, is sufficiently obvious. The calculus being properly secured, its diameter (at least in one direction) may be ascertained, by referring to the scale. It is now to be broken into fragments; and for this purpose the screw of Segalas' instrument is to be gradually tightened so as to compress the stone. By increasing the power used, one or more fragments will be detached, which will be known by the male branch starting forward with a jerk, and being again arrested by the body of the stone. The action of the screw is to be continued until the branches are brought into apposition at their extremities. The operation becomes now more complicated, since the fragments are seized with increasing difficulty as they become reduced in size. The process of searching for the different pieces and crushing them down still further, is to be continued as long as circumstances will admit; in general, perhaps eight or ten minutes may be sufficient for one sitting; this, however, will depend on the condition of the patient and the degree of irritability of the parts. The lithotriteur being withdrawn, the double catheter is now to be introduced, and Read's syringe attached to it; by which means a stream of warm water is to be circulated through the bladder, washing out the sand and smaller fragments by the inferior aperture of the instrument. If, from the great size or hardness of the stone, the operator finds it impossible to break it by the action of the screw, the brise-pierre is to be placed in the vice, the lateral handles of which are to be held by an assistant on each side, while the operator himself firmly grasps its inferior handles. He is now to proceed to use the hammer, striking smartly with it on the extremity of the male branch. This will frequently make fragments fly off from the calculus, and render it more easily reduced. If this method fails, the instrument of Civiale must be introduced, and the calculus perforated in various directions, which, by lessening its power of cohesion, will render it more readily acted on by the lithotriteur, or Amussat's modification of Civale's instrument may be used for this purpose, and the stone perforated and split up by it before subjecting it to the action of the lithotriteur.

The intervals between each sitting may be three, four, or perhaps days, according to circumstances; the patient being kept on an antiphlogistic regimen, and drinking mucilaginous diluents. He is directed to retain his urine as long as possible, that, by passing a large quantity at a time, the smaller fragments and sand which remain may be carried out of the bladder. Stooping forward while making water will also facilitate this. It sometimes happens, that a portion of the calculus becomes engaged in the urethra. In this case MM. Labat and Amussat introduce an instrument resembling M. Civiale's perforator in miniature, and either extract the fragment without breaking it, or crush it between the perforator and branches. At the subsequent sittings, the mode of proceeding is much the same as at first; searching for, and breaking down the fragments, which are still too large to be passed by the double catheter, or by urine, and this is to be continued until no remains of the stone can be felt.

I have seen M. Civiale on two occasions, in L'Hôpital Necker, extract a small calculus from the bladder, with little apparent suffering to the patient, by merely embracing, and crushing the stone between the perforator and branches of his instrument.

Art. IV.—*On Lithotrity.* By W. Fergusson, F. R. C. S. E. Lecturer on Surgery, and one of the Surgeons to the Royal Infirmary of Edinburgh.

The operation of lithotrity appears to me to be one of such importance, not only in a professional point of view, but as being deeply interesting to the welfare of mankind, that I cannot but suppose that the following observations will be looked on by my professional brethren as of some value, in the present state of our knowledge on the subject. The enlightened state of the medical profession in general in this country at the present time, prevents in a great degree any single individual from acquiring very extensive practical knowledge on any particular disease. There are few districts of the country where medical men are not to be found competent to the treatment of the most difficult surgical cases; and in many of the provincial towns, there are practitioners who, in all points, can be considered as little, if at all, inferior to their more fortunate contemporaries of metropolitan eminence. Few persons are at the present time particularly celebrated for the treatment of individual diseases; and in that of stone in the bladder, though there are many yet who are justly celebrated for its treatment, it must be allowed that the patients are scattered amongst a much greater number of practitioners than in former times, and consequently, the amount of individual experience has thus become limited.

Judging from the present state of periodical medical literature, however, it does not appear to me that there is any lack of those who are willing and anxious to lay their professional experience, limited though it may be, before the public; and I am therefore the more astonished that the subject of lithotrity should have apparently attracted so little of the attention of our medical community. It is true that few profess entire ignorance of the subject. But it is equally true that few practitioners in this country can or will speak on their own experience; and it is evident that many in the profession speak and argue on this most interesting subject on grounds which are every year proved to be less and less worthy of that consideration which unfortunately has been but too generously bestowed on them. It must now appear evident to every unprejudiced person who has seen anything of lithotrity, or examined its history, that too much reliance has hitherto been put on the statements of professed lithotritists; and, for my own part, I have long been of opinion, that, until this method of treating stone in the bladder is considered in a strictly professional manner, as other important professional questions have been, our knowledge on the subject will not be productive of those beneficial results which follow the experience of years. From the statements of Civiale, Velpeau, and others on the continent, on the merits and demerits of lithotrity, it really seems doubtful if any satisfactory accounts can be expected from that quarter for some time to come; and why British surgeons, who consider themselves as in no way inferior to their continental contemporaries as lithotomists, should not show more interest in this new method of treatment, seems unaccountable.

Many exceptions, however, may be made to this general accusation of apathy on the part of my professional brethren; and it must be allowed on all hands, that the promoters of lithotrity have received almost unlimited encouragement from the British public. In time, I doubt not, we shall arrive at more satisfactory conclusions than we can do at present. Nothing will contribute more to this desirable end than observations and statistical inquiries made by British surgeons; and it is truly gratifying to see the subject taken up by one possessing such extensive opportunities of observation as Mr Key.* It is now several years since I contributed what little was in my power to assist the interests of lithotrity; and though I cannot boast of great experience, I still flatter myself that I have given the subject that fair and unprejudiced consideration which it demanded on the part of a conscientious surgeon. It is certainly to be regretted, that discussions on the respective merits of lithotrity and lithotritists should have assumed so much the appearance of personalities and party questions; and in the heat of argument it is to be feared that statements have been made on both sides which may not stand the test of strict inquiry. Indeed, I know personally, that from the extravagant anticipations formed of the advantages of lithotrity, which had been founded on the statements of some of its advocates, a feeling of distrust has arisen in the minds of many, after some experience, as to the value to be put on the averments of any professed lithotritist, which has in no small degree tended to excite that of partizanship, or, what is worse, of apathy to the whole matter. I hold, that in the present state of our experience on lithotrity, no one who is not in the habit of practising both methods of treatment, or, at all events, of seeing both, can give anything like a correct opinion on the subject, and, as I have already stated, individual experience must be limited. If every practical man, however, would put his views on record, the existing difficulties in the way of truth might be speedily overcome.

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* See Guy's Hospital Reports, No iv.

Before proceeding further, I shall state briefly the particulars of certain cases which have occurred in my own practice, and the results of a considerable number more, where I have had ample opportunities of making myself fully acquainted with the details.

Case 1.—A stout healthy man, about the middle period of life, underwent repeated operations with the lithotrite, all of which were attended with great pain; and though at the end of several years no stone could be felt, he was in a worse condition than before coming under the surgeon's hands, in consequence of chronic disease of the bladder, apparently induced by the method of treatment.

Case 2.—Mr J. was operated on several times with very little suffering. After being fourteen days under treatment, only one small fragment could be detected, which, however, could not be readily grasped with the instrument; he went to the country, and shortly after passed a fragment, supposed to be the remainder of the stone. Not long after, symptoms of stone again came on, and about eighteen months after the first operation, he submitted again to lithotrity, and the operation was performed with apparent success.

Case 3.—J. W. submitted to lithotrity, and bore the first operation without much pain. In the subsequent attempts, he suffered torment, but, notwithstanding, determined to persist, though it was frequently proposed to perform lithotomy. After repeated operations, and great suffering, the bladder seemed clear of all fragments; and ever since, he has remained in good health.

Case 4.—R. B. had suffered from stone in the bladder for forty years, firmly resolved never to submit to lithotomy. He felt anxious to undergo lithotrity, and put himself under my care for that purpose. I made an attempt to seize the stone without success, and though the smallest possible degree of violence was used, still he suffered excruciating pain, which was followed by a feverish attack, that did not leave him for several months, and since then he remained in a very exhausted condition. After his health was somewhat restored, he at last submitted to the operation of lithotomy, and I removed a large mulberry stone, weighing nearly five ounces. He made a rapid recovery.

Case 5.—The Rev. M. A. subjected himself to lithotrity, but suffered so much after the first attempt, that it was not considered advisable to proceed. Twelve months afterwards, he put himself under my charge, and I removed a small stone by the lateral operation. He made a slow recovery, but, like the patient whose case is last referred to, declared, that in the event of being again the subject of this disease, he would rather submit a second time to lithotomy than to lithotrity.

Case 6.—Mr M. much against my advice, submitted to lithotrity; the operation, though performed with the least possible violence, was followed with excessive irritation and pain in the bladder, which continued for the next twelve hours, but was subdued by powerful opiates. In thirty-six hours, the pain returned, and continued without intermission until death, which happened four days after the operation was done. On dissection, the fragments of a large stone were found in the bladder, and a small one untouched. The prostate gland was enlarged, more particularly the middle lobe. The bladder was sacculated, but there was no trace of any injury having been inflicted on it during the operation. Both kidneys were much diseased in this case, and the psoas muscle on the left side seemed converted into a soft mass resembling coagulated blood.

Case 7.—Mr C. was severely afflicted with symptoms of stone. He consulted me as to the propriety of lithotrity, but I strongly dissuaded him from it. Shortly afterwards, however, he put himself under the care of a professed lithotritist, who broke the stone on one occasion, but could never induce him to submit to a second operation. He has since then suffered much, and is now in a state of great misery, being no doubt in a more deplorable state than before the stone was broken into fragments.

Many other cases have come under my own knowledge or observation with which, however, I was not so particularly connected as those referred to above. I shall, therefore, only mention them in the following list, which will show the result of my experience and knowledge in cases of lithotrity, which have not been described in any accounts on the subject, as yet published.

Out of eighteen cases in which lithotrity was performed, six have been cured; seven not cured, and five have died.

In one of the number of cured, there are strong reasons to suspect a return of the disease; in another, though no stone can be felt, the patient has suffered almost as much since he was operated on (in consequence of disease of the bladder induced thereby,) as he did previous to coming under the surgeon's care. Indeed, in two of these cases only can the operation be said to have been attended with that happy success, which has been so generally claimed for lithotrity.

Of the seven not cured, four afterwards underwent lithotomy, of whom one died and three recovered.

This statement, which differs so very widely from those made by the professed advocates of lithotrity, appears somewhat startling, particularly to those individuals who have had no personal experience on the subject, and who may have given implicit reliance to the statement of M. Civiale, that out of 244 cases, 236 have been operated on with success; and though it is probable, that other surgeons in this country might show their experience in lithotrity to be more favourable than some has been, I feel satisfied that, in Scotland at least, the average of success will not stand higher than I have stated above. The statements made by Civiale as to his success, must appear to every one, on the slightest reflection, to be of the most remarkable nature. It has never been asserted that lithotrity is the most simple of all surgical operations, yet it is questionable if the average of even the most simple cutting operation, could show such successful results as those represented by M. Civiale to follow lithotrity; an operation which, so far from being simple, is allowed by all acquainted with it to be attended with difficulties and dangers of the most formidable description. The subsequent statements of M. Velpeau have, no doubt, gone far to show how little reliance can be placed on the accounts of "cured" by Civiale; and I am sure, that the experience of both surgeons and patients in this country, must have proved either that lithotrity is practised in a very different manner on the Continent from what it is in Britain, or that there is something wrong in the statements of this distinguished lithotritist.

It has been asserted, as some think, on good grounds, that lithotrity has not as yet had fair play in this country, having been practised in many instances by persons having little experience in the use of the instruments, and by some even of questionable dexterity as surgeons. But in all time to come matters will remain much the same both as to lithotrity and lithotomy, seeing that men are not born expert operators, but only become so after years of experience; and in any comparative view of the two operations, it must always be taken into account, that if there are beginners and bunglers in the one operation, there will be the same in the other. In the 18 cases to which I have referred, eight were operated on by a lithotritist of great reputation, three only of which were cured, and many of the others were treated by hands of acknowledged dexterity. In addition to this proof, that the want of success in lithotrity is not attributable to awkwardness on the part of surgeons, I shall refer to what Mr Key has stated in the "Practical view of Lithotrity," lately published by him in the fourth number of Guy's Hospital Reports. "To show," says he, "that lithotrity is neither so universally successful, nor so exclusively applicable as might be inferred, I shall briefly detail the cases that have passed under my observation, occurring in the practice of the two most able lithotomists of the day. In each of these cases I was consulted. Others strongly militating against the exclusive use of the operation have come to my knowledge; but which, as not occurring in my own practice, I forbear to mention." After stating the particulars of twelve cases, Mr Key thus concludes, "of those twelve patients, three were cured, and three underwent the operation of lithotomy. Of the remaining six who died, one sunk with abscess in the prostate gland soon after the operation; four with protracted suffering, in consequence of fragments remaining in the bladder; and one with disease of the bladder, brought on or aggravated by the operation." This then is the result of the practice of "two of the most able lithotritists of the day" out of twelve cases, and what it would have been in the hands of any two of the "most able" surgeons of the day had they used the same instruments, I shall leave for the advocates of lithotrity to conjecture.

It is certainly much to be regretted that the Essay by Mr Key, from which I have taken the above extract, should have been so deficient in a point of the greatest importance to the practical surgeon, viz. The result of Mr Key's experience on the subject. This assertion may appear strange after the quotation already made, but it is not the less true, at least it seems so to me. After alluding to certain improvements in the instruments used in this operation, Mr Key refers to an operation which he had an opportunity of seeing performed by Baron Heurteloup, with the hammer or percussor, by which he was "impressed with the Baron's dexterity, as well as with the great improvement which the change in the instrument had wrought." From this time he began to study lithotrity, and "his expectations have been fully realized." "Since commencing the practice of lithotrity," says he, "I found that more than half the number of adults who have come under my care, have been fit subjects for the operation; and that, in the majority of persons afflicted with calculus, it has decided advantages over lithotomy."

The accuracy of this statement I do not mean to question. But on a subject of so much importance, a little more might have been expected from a surgeon of Mr Key's acknowledged experience and abilities. The two lithotritists referred to, indeed, scarcely receive from Mr Key the treatment which they deserve in the discussion of the question; for after detailing the practice in 12 cases, in which he shows that three only were cured, he proceeds to make the statement last quoted, from which a conclusion may be drawn, that he has been more successful in his practice than they have been. Whether this has been the case or not I shall not inquire at present; but I repeat, that it is to be regretted that Mr Key should not have been more explicit, and stated fairly the particulars of each case in which he has resorted to lithotrity. It is to be hoped that on some future occasion Mr Key will make amends for this deficiency, as it is only to surgeons possessing such vast opportunities as he enjoys that we are to look for these statements, so essential on such an important topic.

It is not my intention in this paper to refer at any length to those circumstances which seem to indicate the propriety of resorting to one operation instead of another, in any case of stone that presents itself to the notice of the surgeon; for this is a subject on which already much has been written, and, in my opinion, to very little purpose. One main point to be attended to in estimating the merits or demerits of the operation of lithotrity, seems to have been much neglected by many writers on the subject, viz. the amount of suffering, compared with that experienced during and after the operation of lithotomy. In the latter operation, it is well known to all surgeons, that, after the stone is removed, (which, under ordinary circumstances, ought seldom to occupy more than a few minutes,) the patient is comparatively free from pain; and though he is kept in bed for some weeks afterwards, the confinement is his chief annoyance. In certain cases much suffering is endured, from a variety of ill consequences of the operation; but it is seldom greater than what is occasioned by the presence of the stone before the operation. In lithotrity, however, it is different, for the sufferings of the patient may be said only to begin after the first operation has been performed. The pain attending lithotomy must no doubt be considerable; but, when the operation is properly performed, it cannot possibly amount to that which attends the performance of many other operations, of much less moment either to the surgeon or patient. The presence of stone in the bladder, and the operation for its removal, are attended with a degree of mental anxiety, which ceases so soon as lithotomy is performed; and this feeling, in which the uncertainty of the result of the operation, no doubt, holds a prominent place, deters many from submitting to the knife, and renders them, on the other hand, anxious to undergo an operation, from which they are led to anticipate a relief from suffering, and an escape from all the much-dreaded horrors of lithotomy. That this is the view that patients have generally been led to take of this operation, cannot be denied; and yet in many instances they have been miserably disappointed. If an opinion is desired as to the nature of an operation, I know of none in surgery where the *minutiæ* require to be more attended to than in lithotrity; yet these are the points which seem to me to have been most neglected.

In estimating the results of many of the ordinary transactions of life, people generally look to the means by which these have been, or are to be, obtained; but in all that pertains to lithotrity the case seems to be different. The advocates of this operation have been blameably negligent in not stating the evil effects which follow it in a great proportion of patients. Any one who witnesses an operation of this kind, if it be done well and for the first time on the patient, will most likely be impressed with the simplicity of its nature, and the small extent of suffering; but were he to see the patient twelve hours afterwards, or witness the second operation, his opinion might be sadly changed; and did he see the unfortunate individual some weeks after, pale, emaciated, and exhausted by continued suffering, and yet not half rid of his enemy, he would then allow that he had formed too hasty an opinion of lithotrity. That such effects follow in many instances, I presume no one can deny; and I am bound to allow, that in other examples neither pain nor annoyance of any kind, compared with that occasioned by the presence of the stone, is experienced. We often hear of persons walking to the house of the lithotritist, having an operation performed, or "sitting," as it is called, and walking home again, as if nothing had been done; but we seldom hear of other instances, perhaps of the results in the same cases, wherein retention of urine, violent inflammation of the bladder, muco-purulent discharge, and death, have supervened; yet such are frequently the results of this operation, even when done by professed lithotritists, and on subjects previously declared favourable for its performance.

Many persons seem to suppose breaking the stone in the bladder all that is requisite for the cure of the patient, forgetting that the fragments still remain, and must be removed ere recovery can take place. There are few stones of moderate size that cannot be broken by any of the instruments in ordinary use; but after this the cure must be in a great measure left to nature and chance. The fragments, excepting a few, (often in the form of a paste,) which are brought out with the instrument when it is withdrawn, are left to be expelled with the urine; and when it is supposed these are too large to pass along the urethra, the instrument is again introduced, and they are treated as the original stone was. If the stone be small and soft, it is in many instances broken at one sitting into such small fragments, that they pass along the urethra without the consciousness of the patient; but, on the other hand, it often happens that a variety of large fragments remain in the bladder, which, with their sharp angles, cause some additional pain, often excite acute or chronic inflammation of the bladder, muco-purulent discharge, fever, and death. Should it happen that a fragment, somewhat larger than can readily pass along the whole length of the urethra, passes a certain distance from the bladder, a circumstance of no uncommon occurrence, the sufferings which the patient experiences from the retention of urine, which may be the result, and the various attempts to relieve him on the part of the surgeon, are extreme. I have known a fragment, five-eighths of an inch in length, three in breadth, and two in thickness, propelled nearly six feet from the orifice of the urethra after being the cause of retention for some hours. In other instances, I have seen the patient suffer intense agony in consequence of fragments, even small ones, lodging for some time in the urethra. I am unwilling, at the present time, to say more on this subject, feeling assured, that if I succeed by these remarks in drawing the attention of my brethren to a more professional view of it than has hitherto been taken, I shall have ample opportunity in future of laying more fully before them whatever knowledge I already possess, or may acquire by further experience. I cannot close this paper, however, without stating, that, notwithstanding the above account of my experience in lithotrity, which is far from being favourable to the operation, as being one of general utility, I consider that this means of treating stone in the bladder is beyond a doubt the most brilliant addition to the art of surgery that has been made for many years. The operation has had many disadvantages to contend with, resulting both from the inexperience of those who have practised it, and the deficiencies and imperfections of the lithotritic apparatus; but now that these disadvantages may be said to have been overcome, it may be reasonably expected that future accounts of this operation, as performed by British surgeons, will present us with more successful results than have as yet been obtained. We may now, after twelve years' experience, deem it settled that lithotrity can never become an exclusive operation; and the same experience is sufficient to show, that the formidable operation of lithotomy is not required for the cure of all cases of stone in the bladder; on the contrary, that many patients labouring under this most afflicting malady, may be safely restored to health, and with a small amount of suffering, by the judicious application of the lithotritic means.*

ART. V.—*Surgical Cases.* By JAMES SYME, Esq. Professor of Clinical Surgery, and Surgeon in Ordinary to the Queen.

FROM the cases which have occurred within the last twelve months the following are selected, in the hope that they may be found to possess some points of interest for the practical reader.

Rupture of the axillary artery—diffused aneurism—ligature of the subclavian—amputation at the shoulder-joint—recovery. On the 15th of October last, I received an urgent summons to Inverness, to see a gentleman who had met with a serious injury, and on my arrival learned the following particulars of the accident from Drs Robertson and Nicol, and Mr Fraser, who was the patient's ordinary attendant. On the 23d of September, Mr A., 23 years of age, was thrown out of a gig upon the road with great violence, and lighted on his left shoulder. When taken up he complained of pain and swelling in the arm-pit, and surgical assistance being immediately procured, it was at first thought that the humerus had been dislocated downwards. On more careful examination, it appeared that the bone was in its proper place, and that the hard tumour in the axilla, which had been mistaken for its head, depended on effusion of blood. The patient was kept quiet in bed, with cooling lotions applied to the injured part. For a day or two the swelling increased, extending down the arm, and the side of the body, and attended with discoloration of the skin. A gradual improvement then took place in the uneasy feelings as well as the external appearance. But on the tenth day after the accident, a sensation of gushing was felt in the arm pit, and the pain and tension suddenly became as great as ever. Leeches were applied, and the case again proceeded favourably for eight days, when another gush took place. Attacks of this kind then became more frequent, and at length occurred almost daily. They were always relieved by leeches, of which about 300 had been applied. I found the arm enormously swelled by œdematous effusion, which extended to the points of the fingers. A large fluctuating tumour occupied the axilla, and distended the pectoral muscle. There was no pulse at the wrist, and not the slightest movement or sound could be perceived in the swelling. The patient, worn out by pain, loss of blood, want of sleep, low diet, and apprehension, was reduced to a state of extreme weakness.

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* For an account of the comparative merits and disadvantages of lithotrity and lithotomy, we refer to Vol. xliii. p. 221.—ED.

In these circumstances it seemed difficult to determine whether there was an axillary aneurism or merely a bloody effusion. The gushing sensation, and absence of pulse at the wrist were in favour of the former view, while the complete absence of pulsation and aneurismal *bruit* in the tumour, from its commencement and during the whole period of its existence, could hardly be accounted for, except by the latter explanation. The case being thus doubtful, and as pressure had not been tried, it did not appear prudent to resort to any operation until the effect of careful bandaging had been ascertained. A flannel roller was accordingly applied from the fingers to the shoulder, and round the chest.

As it was very uncertain what steps might in future be required, and quite impossible for me to assist in their execution, at so great a distance from home, the gentlemen above mentioned proposed that the patient should be conveyed to Edinburgh by the steam-boat. This plan was readily acceded to by him, and as the boat sailed the same evening for the last time that season, the preparations for his departure were immediately made. He bore the fatigue of getting on board and leaving the vessel, as well as the voyage itself, which occupied two days and nights, much better than could have been expected, and arrived at the lodgings provided for him here, in all respects better than when he left Inverness. He derived great comfort from the bandage: the swelling of the arm was considerably reduced: and there had been no return of the gushing sensation.

He continued in this satisfactory state for three days, but on the morning of the 24th sent for me on account of severe pain in the most prominent part of the swelling. This corresponded with the hollow of the axilla, and formed a round prominent tumour of a dark-red colour, apparently about to open. The patient was impressed with the idea that matter had formed, and entreated me to make an opening for its escape. Thinking that a small puncture might be made with safety, I introduced the point of a narrow bistoury, and finding that nothing issued, enlarged the wound to the extent of half an inch, when a small clot of blood was squeezed out. Hoping from this, that there was merely a bloody effusion from the smaller arteries or large veins, I placed a piece of lint loosely upon the wound. Four hours afterwards, at 11 A. M. I changed the piece of lint, and a few minutes afterwards observed it wet with arterial blood, a jet of which immediately followed. By means of a pin thrust through the lips of the wound, and a ligature tied round it, I prevented further hemorrhage for the time, and then considered what was to be done, with Sir George Ballingall, and Mr Dewar of Dunfermline, who happened to be in town. They concurred with me in thinking that the subclavian should be tied without delay, and this, with their assistance, was accordingly done.

The elevation of the clavicle by the axillary swelling, and the condensation of the cellular substance consequent upon the ecchymosis, of which the discoloration extended from the neck to the hip, rendered the operation more difficult than usual; and the artery not only lay deep, from being on the left side, but was overlapped by the cervical nerves to a greater extent than I recollect of noticing in dissection. These obstacles having been overcome, the artery was exposed, and tied with a single silk ligature. The patient passed the remainder of the day tranquilly, and next day when I saw him in the forenoon seemed to be going on well. But at two o'clock P. M. two or three ounces of blood escaped from the wound in the axilla, and a compress of lint was then secured over it by means of a spica bandage. At seven next morning, as the bleeding returned to somewhat larger extent, I stuffed the orifice with lint. At eleven A. M. it was thought right to lay open the cavity, turn out all the clots that could be reached, and apply graduated compresses. When the artery was thus exposed, it bled freely, but not with such force as to resist the pressure of the lint. In half an hour afterwards, however, the hemorrhage recurred, and as the temperature of the arm was then distinctly lower than natural, Sir George and I decided that the only remaining resource was amputation at the shoulder-joint.

Drawing the patient to the edge of his bed, I readily removed the limb, and exposed to view a frightful cavity containing coagulated blood, extending as low down the side as the *latissimus dorsi*, and stretching forwards under the pectoral muscle. The artery appeared to have been torn across, immediately below the origin of the subscapular, through which the blood was flowing in a retrograde course; I tied it—the axillary—and one or two other vessels, scooped out all the clotted blood I could reach, and then stitched the edges of the wound together. The patient, for several hours after the operation, threatened to sink under this final act of his trials. He complained of nausea, and was deadly pale; his face was covered with cold perspiration; and his pulse could hardly be felt. Small quantities of wine were given to him frequently, and in the evening he revived; feeling warm and comparatively comfortable; the pulse became firm and could be counted, 160. Next day it was 140; the day following, 120; and so on until it fell to the natural state. In other respects the improvement was equally progressive, and before the end of a week there was no room for anxiety except on account of the ligature above the clavicle. It was longer of separating than usual, but probably lay loose for some time before it came away, owing to the patient's extreme aversion to let it be touched. His recovery was complete both in regard to the wound, and the general health.

The points in this case most deserving of attention are, 1. the way in which the artery was ruptured; 2. the absence of pulsation and aneurismal *bruit* in the tumour; 3. the inefficacy of tying the arterial trunk at a distance from the rupture and with the intervention of branches; and 4. the success of amputation in very desperate circumstances. Whether pulsation was prevented by the artery being torn entirely across, and whether ligature of the subclavian would have proved effectual if not preceded by puncture of the tumour, are questions which I leave to the consideration of the reader.

Aneurism of the External Iliac artery—obscurity delaying an operation—mortification of the limb— ligature of the common iliac, and amputation of the thigh—dissection.—On the 15th of May last I was requested by Dr Alison to see a case of iliac aneurism in a man who had come from the country. I found the patient, Alexander M'Dougal, aged 31, a thin anxious unhealthy-looking person, by occupation a tailor. He stated that, three months before, he had perceived a beating tumour, the size of a pigeon's egg, in the right groin, which rapidly increased in size. A medical practitioner in the part of the country from which he came prescribed fomentations, liniments, and poultices, with the view of hastening its progress to a proper state for being opened. As it rapidly increased in size both upwards and downwards without becoming softer or appearing to approach the surface, leeches and mercurial ointment were next employed, and no benefit being derived from these means, poultices of potatoes were recommended. He then applied to another practitioner, who told him that an operation would be required, and a third gentleman gave him the same opinion.

Having carefully examined the tumour, I came to the conclusion that it was an aneurism still within command by tying the common iliac artery, and advised him to go into the hospital. He did so, and in the case which I dictated next day to my clerk, it is stated, that " there is now a large tumour occupying the whole space between the pubes and the crest of the ilium, and extending three inches above a line drawn between these two points, and nearly two below it. The consistence of this tumour is tense and elastic; a very obscure pulsation may be felt at some parts of its extent; and the aneurismal *bruit* is very distinctly heard. The patient complains principally of pain in the knee."

My colleagues, Sir George Ballingall and Dr Campbell, could not perceive any pulsation, but from the history of the case, and the general character of the tumour, agreed with me in regarding the tumour as an aneurism. With their sanction I resolved to tie the common iliac artery, and desired the usual notice of an operation to be issued. In the evening, Dr Alison, who at my request had again examined the tumour, sent me a note to say that he felt strongly inclined to think that it was not an aneurism, and I therefore resolved not to proceed without farther observation of the case. Next day a great number of medical gentlemen assembled to see the operation which had been announced, and I took the opportunity of getting their opinions as to the nature of the tumour. Sir Charles Bell, Sir William Newbigging, Sir George Ballingall, Drs Abercrombie, Davidson, Maclagan, Hay, Campbell, Robertson, &c. &c. carefully examined the swelling, and came to the unanimous conclusion that it would be wrong to operate until the nature of the case became more distinctly manifested.

After this the tumour obviously enlarged, and acquired a more irregular nodulated surface,—the limb became oedematous. The pain, in the knee too, which had been very severe, seemed now quite intolerable, not only rendering the patient completely sleepless, but inducing him to sit constantly in bed with his head bent forward, almost in contact with his knees; and his complexion, which had been always sallow and unhealthy, assumed more of the greenish-yellow hue atending malignant disease of the cerebriform kind. Some persons, who at an earlier period had hastily and confidently decided upon the tumour possessing a solid consistence, then boasted of their superior acumen, and the patient seeing no prospect of relief, resolved to return home. As it was very desirable to see the issue of the case, and as it would have been impossible for the poor man to obtain at his own residence the means necessary for palliating his sufferings, I persuaded him, since he was resolved to leave the Infirmary, to go into the private hospital at Minto House, which he accordingly did on the 4th of June.

On the 6th the leg became cold, and on the 7th pulsation was felt distinctly throughout the tumour, On the 8th I requested Sir Charles Bell, Sir George Ballingall, and Dr Campbell, to consider what should be done. The pulsation left no doubt as to the existence of aneurism. But the tumour had ascended to within an inch of the umbilicus. And the leg was not only cold, but of a bluish-purple colour from the knee downwards, with some large vesicles on the calf. It was plain that the mortification, if allowed to proceed, must prove fatal in two or three days at most. There was reason to think that room still remained for tying the common iliac; and that if this were done, the process of mortification might be stopped, by amputating the thigh. We therefore resolved that an attempt should still be made to save the patient's life.

The external incision was between six and seven inches long, extending from a little above the external ring upwards in the direction of Poupart's ligament, but diverging from it with a slight curve inwards. The parietes of the abdomen were readily divided, and little difficulty was experienced in turning back the peritoneum from the tumour, which was done cautiously to prevent rupture of the membrane on the one hand, or of the sac on the other. I felt the external iliac artery beating on the upper surface of the tumour, and traced it back until it became free, immediately beyond which the internal iliac came under the finger, and beyond this the common trunk lay quite free. So far the operation, however formidable, had not been attended with much embarrassment. But in proceeding to pass a ligature round the vessel, I found the narrow space which was all that could be gained between the unyielding convex surface of the tumour, and the peritoneum distended by the viscera, and which was nearly equal in depth to the whole length of my hand, rendered the employment of aneurism needles very perplexing and uncertain. Having tried several of different kinds, I at length succeeded in passing one of the simplest form; and then having the parietes of the cavity held carefully aside by iron spatulas, got a view of the ligature, and drew it out by means of a hook. A single firm knot was tied on the vessel, and one end of the thread cut away. The edges of the wound were stitched together.

In the course of the day the tumour became smaller and softer. The coldness and discoloration of the limb extended above the knee, and the patient complained of inability to retain anything in his stomach. On the 9th he was in much the same state, with some tympanitic distension of the abdomen. On the 10th he was no worse. On the 11th amputation of the thigh was performed close above the discoloured part of the limb. On the 12th the patient died.

On dissection, we found the common iliac firmly tied, exactly at the middle point between its origin and bifurcation, without any inclusion or injury of the neighbouring parts. The vessel contained a clot above and below the obstruction. The peritoneum showed traces of much inflammation, but not general or very extensive. The nodular inequalities of the surface of the tumour depended on the glands of the groin, which were enlarged and elevated by the subjacent swelling. The aneurism was of great extent, occupying the triangular hollow of the thigh, and stretching up into the pelvis, so as to fill the cavity of the *ilium*, and even extend considerably beyond it towards the back. The ramus of the pubes was exposed and rough, and the capsule of the joint was nearly if not completely perforated by absorption.

The external iliac and its continuation the common femoral artery lay intimately incorporated with the aneurismal sac, but remained quite entire except for about an inch at Poupart's ligament, where the coats of the vessel were deficient to this extent, on its inner or inferior surface.

Aneurism at the bend of the arm consequent upon venesection—operation.—Peter Norval, aged 17, from Milnathort, was admitted on the 9th of August, on account of a tumour which had occurred at the bend of the right arm, in consequence of a bleeding performed two weeks previously for some affection of the throat. Nothing, he says, happened at the time to occasion alarm, but two hours afterwards, the arm swelled, so as to excite his apprehension, which was relieved by the operator's assurance that there was nothing that would not soon be dispelled by friction with some stimulating liniment. General swelling of the arm nevertheless took place, and when this subsided, a diffused pulsating tumour was found at the bend of the arm, above and below which it extended for nearly three inches. The arm could not be extended beyond a right angle, and there was hardly any pulse to be felt at the wrist. After trying compression for a few days, without any benefit, I took the advice of my colleagues in regard to the case, and was by them advised not to delay the operation any longer, as three weeks had elapsed, and the state of matters was not improving.

I therefore, after applying a tourniquet to the arm, made a free incision into the aneurism, turned out the clots, and tied the artery above and below the wound, which was nearly a quarter of an inch in length. In a former report I have recorded a case of this kind, in which I tied the brachial artery without opening the sac, but was afterwards obliged to do so, from the disease not being controlled by this measure.

Division of the brachial vessels and nerves—death of the arm—amputation—recovery.—Some months ago Mr Craig of Ratho asked me to see a poor man at Balerno, who had been severely injured by the machinery of a paper-mill, and could not be brought to town. I found a large oblique lacerated wound of the arm, a few inches above the elbow, passing through the situation of the blood-vessels and nerves, and exposing the bone. The arm was perfectly cold and devoid of sensation as well as motion, but not altered in appearance, so that it resembled in all respects the limb of a dead body in which putrefaction has not commenced. The patient, a man apparently between fifty and sixty, was in a very low state, with a small frequent pulse. The injury, which had happened two days before, was not attended with much bleeding.

Conceiving that amputation afforded the only chance of escape, I immediately removed the arm close to the joint. I did not see the patient afterwards, but have been informed by Mr Craig that he suffered great constitutional disturbance, with typhoid symptoms of the most alarming character, followed by erysipelas, leading to extensive suppuration and sloughing in different parts of the body, from all which, however, he ultimately recovered. The amputated limb afforded a good example of the mode which I have repeatedly described in former reports as the true explanation of torn arteries not bleeding. The internal and middle coats of the vessel were not irregularly lacerated or disposed so as to obstruct the passage through it, but presented a smooth circular edge, round and beyond which the external or cellular coat had collapsed in the form of a conical bag filled with coagulum.

This case seems of some interest, in so far as it shows the danger of allowing a part deprived of life to remain in connection with the living body. Had this man's arm been amputated on the day he met with the injury, he would in all probability have recovered easily and speedily; and had the operation been delayed a day longer, in addition to the two that elapsed before it was performed, I think there can be little doubt that he would not have been able to struggle through.

Dislocation of the Thigh-bone on the Dorsum Ilii, of nine weeks standing—reduction.—William Scott, aged 36, a mason in Dunfermline, fell while walking on the road, from his foot becoming fixed in a cart track, and dislocated his left thigh-bone upwards. He applied to a bone-setter in the neighbourhood, and also to a regular practitioner, who attempted without success to effect reduction. He then proceeded to a famous bone-doctor near Perth, who told him that the injury, having existed so long, nearly five weeks, could not be remedied. He returned home, and spent another month in hopeless lameness, when Mr Dewar happened to see him, and recommended his case to my care.

The patient possessed a strong muscular frame, and the bone had become very moveable in its new position. So far the circumstances were unfavourable, and rendered the prospect of success still less promising than it appeared to be, from nearly nine weeks having elapsed since the accident happened. It being still considered right to make an attempt, the day after his admission, on the 6th of December, the patient, after losing sixteen ounces of blood from the arm, was put into the warm bath for an hour. He was then carried into the theatre and took at intervals a solution containing four grains of tartrate of antimony. He lay upon his right side, with a mattress between him and the floor. A hair cushion was placed in the perineum, over which and obliquely round the pelvis a broad canvass band was passed, and fastened to a ring in the wall. A skein of worsted, being then secured to the thigh immediately above the knee by the *clove hitch*, extension was effected by the aid of pullies nearly in the direction which the limb had acquired through the displacement of the bone. At the end of 40 minutes reduction was effected without any snap or perceptible grating.

The patient, who had not vomited in the theatre, did so frequently after going to bed. He was kept very quiet, and had the hip occasionally fomented. He recovered quickly and completely, so as not to suffer the slightest pain or lameness. He paid a visit to the hospital after his dismissal, and stated that he had that day walked fifteen miles without any difficulty.

Dislocation of the Thigh-bone into the Ischiatic notch—reduction.—James Inglis, aged 56, while working under ground in a coal mine, and stooping forward, was struck down by a fall of earth upon his back. He was sent in from the neighbourhood of Dalkeith, where the accident happened, on the 10th of December, the day after receiving the injury. Having repeatedly effected reduction in recent cases of dislocated hip, by the simple means of unaided manual extension, I did not think it necessary to subject this patient to any preparatory process, and at once applied the pulleys, during the operation of which he was made to take repeated doses of a strong solution of tartrate of antimony. At the end of three quarters of an hour, finding that the bone still remained displaced, I resolved to desist for the time, and make another attempt after a more careful preparation.

Next day the patient was in a very feeble state, having been extremely sick ever since returning to bed from the operating theatre. He was nevertheless put into the warm bath for an hour, and bled from the arm to the extent of twelve ounces. The process of reduction was then resumed, and in a very short time proved successful.

Dislocation of the Thigh-bone upon the Dorsum Ilii, of six weeks standing—reduction.—Elizabeth Waters, aged 26, fell down a coal pit near Kirkcaldy to the depth of 20 feet, and in consequence dislocated her right thigh-bone. Different practitioners assured her that the joint was merely bruised, and would recover through time. At length she applied to a gentleman supposed to be peculiarly skilful in such cases, who informed her that the bone was out of its place, and could not be returned to it, on account of the long time, five weeks, that had been allowed to elapse. In the course of another week she was sent to Edinburgh, and entered the hospital on the 17th of July.

She was admitted at 11 A. M. and immediately placed in the warm bath, where I found her on making my visit at 12. As her muscular system did not seem strong, or likely to afford much resistance, I proceeded to attempt reduction without any further preparation, except administering a dose of tartrate of antimony. The process was conducted as has been described above, and at the end of 10 minutes proved successful, the bone returning into its place with a dull grating sensation. The patient suffered some pain about the joint, and was kept very quiet for a fortnight. She left the hospital on the 3d of August, with the prospect of being soon quite well.

These cases show the importance of preparatory measures for reduction, especially the warm-bath; and I may add, that in all of them, the extension was not maintained continuously, but completely relaxed from time to time, in order to fatigue the muscles, and disturb the patient's involuntary efforts to resist the exertions for his relief.

Two cases of dislocated shoulder-joint occurred in the course of the winter, respectively of two and three weeks duration. They were both easily remedied by extending from the wrist in the direction of the long axis of the trunk, so as to prevent the *latissimus dorsi* and *pectoralis major* from opposing the resistance which they are apt to do when extension is made transversely.

Fracture of the Thigh-bone—defective union with distorsion at the end of six months—subsequent recovery.—John Porteous, aged 27, had his right thigh-bone fractured about a third distance from the lower end of the shaft. He was treated by means of the long splint, under the care of a most intelligent and attentive practitioner, but, probably from the difficulty of managing such injuries in the close beds and inconvenient houses of country people, osseous union did not take place, and on the 4th of July, nearly six months from the date of the accident, the patient was admitted into the hospital.

I found the fractured limb nearly two inches shorter than the other. The thigh was swelled and bent outwards, the portions of bone forming an obtuse angle at the seat of injury, and motion was distinctly perceptible between the broken extremities, when they were subjected to force urging them in opposite directions. With very little prospect or hope of success, I resolved to make an attempt for the patient's relief, and with this view applied a cushion of hair over the projecting extremities of the broken bone, then placed over this a wooden splint long enough to extend from beyond the toes up to the false ribs, and secured it firmly to the leg by means of a sheet, which, after repeatedly surrounding it, enveloped the limb. The upper end of the splint was then drawn towards the pelvis, and confined to it by a broad belt, passing round both the one and the other.

In consequence of the force thus exerted the thigh-bone was straightened, and *the limbs became of equal length.* The patient lay very quietly, and at the end of four weeks was relieved from confinement. The thigh-bone then was perfectly straight, and osseous re-union seemed to have been at length effected. The patient now suffers no uneasiness except from stiffness of the knee-joint, consequent upon the long-continued extension of the limb. This defect, however, has not been increased since he entered the hospital, and, being only partial, will probably soon yield to warm baths and frictions.

This case is interesting, as it bears on the important question in practice, of how long after the occurrence of a fracture surgical art may interfere with advantage. About two years ago, there was a case of this kind in Perth, which attracted considerable attention. The patient, a gentleman between thirty and forty years of age, was treated by a surgeon of great experience and respectability, for a fracture of the thigh, during six weeks. At the end of this time, the limb was taken off the double inclined plane on which it had been laid, and found to be shortened as well as distorted, very much in the same degree and direction as in the case just related. The patient then proposed a consultation, which was opposed by his attendant, on the ground that no good could be done by any mode of treatment at that distance of time from the injury. He therefore placed himself under the care of another practitioner, who sent for me to consider with him what should be done. I suggested the same plan that has been described above, and was happy to hear that through the assiduous care of Dr Malcom, it soon had the effect of rendering the injured limb perfectly straight and strong.

On returning from my visit to this patient, I received a letter from his former attendant, to inquire, among other things, how long, after a fracture, I thought surgical treatment could interfere with advantage to the patient,—to which I replied, that so soon as osseous union was effected, the time for interference in my judgment had passed, but that so long as the broken surfaces admitted of motion, I thought there was room for beneficial practice. It was generally reported that, in this case, I had broken the bone a second time in order to make it straight; and as I should be sorry to be represented as sanctioning such a practice, I am happy to explain my sentiments in connection with the case now recorded, which being remedied at the end of six months, will make the other of six weeks standing appear less surprising.

Club-foot—division of the tendo Achillis.—Elizabeth M'Lauchlan, aged five years, and Mary M'Lauchlan, aged three years and a half, sisters, were admitted on the 21st of June, on account of *varus* of the left foot. The feet had been completely turned in since the time of birth, and were greatly deformed by thickening of the *bursa* over the part which rested on the ground. I divided the *tendo Achillis* in both by puncturing with a narrow knife, as I have described in a former Report, six years ago, in regard to dividing the sterno-mastoid muscle for wry-neck. The usual apparatus for club-foot was immediately afterwards applied, which plan, I find to answer better than delaying its use until union is established between the ends of the tendon. The foot of the younger child is now quite straight when at rest, though it still has a tendency to inversion when she walks. The improvement in the older one is not quite so great as yet.

Tumour of the upper jaw depending on cysts connected with the presence of teeth in a preternatural situation—removal—recovery.—Margaret Henderson, aged 31, recommended to my care by Mr Nasmyth, was admitted on the 21st of February for the removal of a growth from the upper jaw. The following particulars in regard to it appear in the Case-book. There is a hard circumscribed swelling of the superior maxilla of the right side, extending from the mesial line to the first grinder, and upwards to the *infra orbitary foramen.* The superior spongy bone of the same side is pressed inwards and forwards. The patient states that four months since, she received a blow upon the right side of the nose, occasioning a good deal of pain which has never disappeared. She complained of toothach for two or three days after the injury, and in the course of seven or eight weeks felt pain in the gum, which suppurated and opened, discharging a small quantity of bloody matter. She then had a tooth extracted, with the view of removing the swelling, which notwithstanding has been, and still is gradually increasing.

I made an incision from the inner angle of the eye, directly down to the mouth, and reflected the flaps so as to expose the anterior surface of the tumour and the cavity of the nostril. The operation was then readily completed by two strokes of the cutting forceps. On examining the state of the face, we were not a little surprised to find in a cavity beyond the tumour which was taken out quite entire, a hard body, that proved on examination to be a fully formed canine tooth, encrusted with a thin plate of bone, quite smooth and entire, except at one point, where it seemed to have been broken away from some other bone.

The tumour when cut into was found to consist of dense cyst lined throughout with earthy matter in a crystalline form, and containing a clear glairy fluid, together with the crown of another tooth, apparently the lateral incisor.

Cysts of the upper jaw-bone connected with displaced teeth are not very rare. But in the present case no suspicion of this was entertained, from the decayed remains of the missing teeth having been, as it was supposed, removed since the tumour made its appearance. When these fragments were subjected to a more careful examination they turned out to be remnants of the primary set, which had so long survived their proper period of duration, probably in consequence of their more permanent successors taking a wrong direction, and not causing the requisite pressure for exciting the absorption that effects their separation.

Tumour of the superior maxilla—removal—recovery.—Thomas Graham, aged 29, from Dunning in Perthshire, was admitted on the 11th of May on account of a tumour of the upper jaw. It was about the size of a hen's egg, round and firm, slightly encroaching on the nostril and palate, and rendering the margin of the orbit somewhat irregular. It was first perceived about two years before, but previous to this time uneasiness had occasionally been experienced in blowing the nose. Eighteen months before his admission two of the grinders had been extracted, after which a probe was pushed up into the tumour, and more recently an incision had been made into its fore part without producing the discharge of any thing but a little blood.

I performed the operation in the usual way without any difficulty, or the slightest unpleasant consequence. The tumour was taken out quite entire, together with the floor of the orbit and roof of the mouth, as far back as the commencement of the soft palate. It was composed of a very soft, almost gelatinous texture, supported by spicula of bone. The external incisions healed by the first intention so as to leave little deformity, and the internal cavity soon contracted so as to enable the patient to articulate and masticate with wonderfully little imperfection. By and bye, through the skill and kindness of Mr Nasmyth, he will be provided with an artificial palate, and will then, I hope, experience hardly any inconvenince.

The dense fibro-cartilaginous tumour of the upper jaw may unquestionably be removed with the same efficacy as in other parts of the body. But doubts I know are entertained by many as to the possibility of eradicating those which possess a softer consistence and more malignant disposition. In former Reports I have recorded several instances of this being done, and I think it right to strengthen the encouragement thus afforded by adding another fact of the same kind.

Tumour of the lower jaw—removal—recovery.—Mary Graham, aged 24, from Penrith in Cumberland, recommended by Dr Taylor, was admitted on the 12th of February, for the removal of a tumour occupying the left side of the lower jaw. It had been first observed about eight years before, soon after she received a blow on the cheek. Until the last six months it increased very slowly, but since then had rapidly enlarged, so as to attain the size of a small orange or lemon. Externally it felt smooth and firm, but internally possessed a softer consistence, and presented a spongy irregular surface, along which there ran a deep groove formed by the teeth of the upper jaw, those of the part affected having been some time previously extracted. The morbid growth extended from the ramus to very near the symphysis of the jaw.

I made an incision directly down through the lip opposite the left lateral incisor, and another at a right angle to it along the base of the jaw, the full extent of the tumour. The flap was then reflected, and the bone divided by first notching it with a saw, and then applying the forceps. The patient recovered well, without any unpleasant occurrence, and little deformity or permanent inconvenience of any kind.

Tumour of the lower jaw—removal—recovery.—M. G., aged 20, from Melrose, entered the private hospital at Minto House, on the 9th of June, for the removal of a tumour occupying the fore part of the lower jaw. It had commenced four years before, and increased slowly during the first two, but rapidly afterwards. The consistence was firm, and the surface smooth. The extent of jaw engaged lay between the bicuspid teeth of both sides.

In performing the operation, I made merely one incision obliquely backwards from the left angle of the mouth to the base of the jaw, and then reflected the flap which comprehended the whole of the lower lip and chin, so as to allow the bone to be divided on both sides of the tumour. This was attended with somewhat more difficulty than when a second incision is made along the base of the jaw, but rendered the subsequent treatment of the case more easy, and in the highest degree satisfactory. The wound healed entirely by the first intention; and though the patient's features were of a regular and agreeable kind, she went home rather improved than injured in appearance.

Formidable tumour of the scalp—removal—recovery.—Margaret Baker, aged 49, from Stromness in Orkney, was admitted on the 17th of June 1837, on account of a large flat tumour occupying the scalp, from the right ear upwards beyond the vertex, and as widely in a transverse direction. The surface was irregularly elevated and fungous-looking. It bled occasionally, but not profusely. She stated that, five years before, she had observed a small swelling like a pea, which in the course of six months opened into a sore, and spread until it attained the extent which has just been described. There was no affection of the lymphatic glands, and her general health seemed perfectly good.

Encouraged by the circumstance of the disease having commenced in the scalp, and the absence of any other morbid symptoms, local or general, notwithstanding the long duration of the disease, I resolved to make an attempt to relieve the patient.

With this view I cut rapidly down to the bone, round the circumference of the tumour, and then proceeded to detach it, together with the periosteum. No difficulty was experienced in doing this until I approached the centre of the disease, when it appeared that the morbid growth descended below the surface of the cranium. On using a little force the tumour was pushed out of the excavation which it had formed in the bone, and exposed the *dura mater* perfectly bare, but apparently sound, to the extent of between two and three inches in length, and one in breadth.

The patient lost a considerable quantity of blood, owing to the number of vessels in the scalp which required to be tied,—but, contrary to our expectation, had not a single bad symptom afterwards. The large wound gradually contracted and cicatrized, after a thin exfoliation had separated from some parts of the bone,—not the excavated portion, which from the first granulated most kindly. I have repeatedly heard of the poor woman since she went home, and understand that she continues perfectly well.

Adipose tumour extending deep into the axilla—removal—recovery.—Margaret Brown, aged 11, from the neighbourhood of Stirling, was admitted on the 16th of June for the removal of a large pendulous fatty tumour attached to the right axilla. It was stated that the growth had been noticed at a very early age, and had been constantly increasing, until its bulk at length came to be extremely inconvenient, by impeding the motions of the arm.

Not anticipating any difficulty, I made an incision on each side of the neck of the tumour, and divided the cellular substance completely, so as to expose its bare surface. But then, instead of being able to effect removal with the facility usual on such occasions, I found that the growth penetrated deeply between the branches of vessels and nerves; and when extracted by careful separation, exposed to view the axillary trunks, especially the vein, which was no less distinct than if it had been purposely dissected. No trouble was experienced subsequently, and the patient made a good recovery.

Large tumour of the neck removed with success at an advanced age.—About two months ago Mr Burt asked me to see an old lady of 78, who was desirous of having a large tumour removed from her neck. It presented the external characters of a fatty growth, and extended from the scalp behind the ear to the sternum, occupying the whole space between the jaw and clavicle, and resting on the shoulder like a cushion. It was not only unseemly, but very oppressive by its weight and interference with the actions of the throat. The patient had long wished for the removal of the tumour, since she first noticed it thirty years or more ago; but, in respect to the fears of her friends, delayed until the inconvenience attending it became quite intolerable.

No difficulty was experienced in the operation; but the principal nutrient artery being greatly enlarged, threw out an alarming gush of blood when divided. No disagreeable symptom followed,—the wound quickly cicatrized, and the patient was going about in her usual good health at the end of four weeks. The tumour weighed within a trifle of six pounds. It consisted generally of the adipose texture; but exhibited at some parts a variety of aspect, that denoted a tendency to degenerate, and afforded additional ground of congratulation for the disease being removed.

Fatty tumour of an unusual form—removal—recovery.—Mary Symington, aged 26, from Little Dunkeld, was admitted on the 23d of July for the removal of a large tumour, or group of tumours, which protruded from her left flank. The excrescences were five in number, and of different size as well as form, presenting an appearance not unlike that of a bunch of carrots and turnips. When she was three years of age, a small tumour was noticed at the part. It gradually increased to the size of an apple, and was then removed by ligature, in her seventh year. Several excrescences soon followed this operation. One of these was again removed by ligature; but the growths progressively increased both in size and number.

Upon examination, it was found that the tumour grew out of a base spreading for some distance under the skin, which presented the ordinary characters of adipose sarcoma. In order to eradicate the disease, I therefore made a semilunar incision on each side of the projecting portion, and then dissected out its subcutaneous root. The patient recovered without any unfavourable symptom, and is now well.

On making a section of the parts removed, it was seen that a large fatty tumour sent out processes, which had expanded the skin into the variety of form that presented so remarkable an external appearance. Tumours of this kind, on a smaller scale, are very common; and I think the case of importance by illustrating the nature of their constitution, and thus showing the inefficiency of removal by ligature, or transverse section of the neck,—since any operation that does not extirpate the subcutaneous root will certainly be followed by relapse.

Melanotic tumour—removal—recovery.—Jane Rush, aged

36, from Stirling, was admitted on the 18th of May, for the removal of a large melanotic tumour situated midway between the left anterior spinous process and the umbilicus. It was about the size of an orange, of a round form, with a sort of constriction or neck at the base, and of moderately firm consistence. The surface was irregularly nodulated, and of a very dark colour, almost black. It bled, but not much, when rubbed. Round the base of this tumour there was six small ones about the size of peas, quite detached, and causing dark-coloured elevations of the skin. The patient stated that the principal growth had been repeatedly removed by ligature, and once by the knife. which, however, appeared to have been employed merely to effect a transverse section of the neck. The general health was perfectly good.

I removed all the tumours, together with an elliptical portion of skin, and the whole thickness of the subjacent cellular and adipose texture. The patient made a good recovery; but in all probability will suffer from a return of the disease, as the existence of so many separate growths denoted a strong tendency to its production.

Hypertrophy of the mammilla.—Thomas Donaldson, aged 24, from Biggar, was admitted on the 11th of July on account of a tumour in the right breast. It was about the size of the mammary gland in a girl at the age of puberty, which it also resembled in form and consistence. The patient first remarked the enlargement eight years before, and had noticed a progressive increase. He occasionally felt stinging pains. I removed the tumour, which when divided presented a texture somewhat more dense and white than that of the female breast in a healthy state, and the patient made a good recovery.

I have repeatedly met with carcinomatous affections of the male breast, and last year removed a cystic tumour of this part from a gentleman about fifty, but do not recollect of any one similar to the one just mentioned.

Lithotomy successful under unfavourable circumstances.—Alexander Robertson, aged 11, from Auchtergaven in Perthshire, was admitted on the 25th of July 1837, on account of severe suffering from stone in the bladder. He was a very unfavourable subject for an operation on several grounds. In the *first* place, he was thin and unhealthy-looking; *secondly*, he had been passing calcareous matters which seemed to be fragments of a larger calculus; *thirdly*, he afforded evidence of an unsound constitution by the traces of extensive necrosis of the tibia, without reproduction sufficient to maintain the form of the limb; and, *fourthly*, the left hip-joint was anchylosed, so as not only to confirm the unfavourable opinion of his general health, but being in the straight position, effectually prevent his being placed conveniently for the purpose. Nevertheless, I resolved to give him the only chance of relief that remained, and accordingly removed six stones of considerable and nearly equal size. The first of these came away in fragments, but the rest were extracted entire. No unpleasant symptoms followed, and the patient went home quite well. I have lately heard that he continues perfectly free from complaint.

Two cases of lithotomy occurred in Minto House, but did not present any thing remarkable. Mr G. D. from Arbroath, aged 60, and J. W., aged 18 months, from Peebles. The former had four stones removed, and the latter one. They both recovered quickly and well,—the child in ten days.

Wound of the Perineum—obliteration of the urethra—restoration.—Thomas Syme, aged 6, from Dundee, was admitted on the 9th of July. His mother stated that, six months before, he had been pushed off his bed by a twin brother upon a chamber-pot, which being broken by the fall cut him deeply between the thighs. The wound was treated without any reference to the urethra, and in consequence the canal became completely obstructed, so that the whole of his water passed by the preternatural channel.

The orifice of the fistulous canal was near the tuberosity of the ischium, and led to so tortuous a passage, that I found it necessary in the first instance, to content myself with dilating it towards the raphe, so as to renew in some measure the original wound. About a week afterwards I introduced a catheter to the obstructed part, cut upon its extremity, and carried it forward into the bladder, where it was allowed to remain for three days. It has been occasionally passed since, and as the patient now makes nearly the whole of his water by the natural route, a few drops only passing by the fistula, I trust he will soon be quite well.

Tumour of the Clitoris.—A girl about eight years of age was brought from Perthshire on account of a tumour about the size of a small cherry which hung from the extremity of the clitoris. I removed it at once with the scissors, and mention it here merely as an unusual occurrence.

Encysted tumour of the clitoris.—Mrs M., from Dunfermline, was admitted into Minto House on account of an odd-looking tumour at the orifice of the vagina, which she said had been growing for five years. On examination, I ascertained it to be an encysted tumour lying between the skin and lower surface of the clitoris. It was dissected out entire, notwithstanding the extreme thinness of the cyst, and the almost fluid consistence of its contents, which were of a very dark colour. The patient experienced no trouble subsequently.

Fistula in ano—operation unsuccessful, from not including the internal aperture in the incision—effectual operation.—Donald Gunn, aged 31, from Cape Wrath in Sutherlandshire, came to Edinburgh last January, on account of a *fistula in ano*, from which he had been suffering two years and a half. He was admitted into a public institution, and subjected to an operation, eight days after which he was dismissed as cured. Finding, however, that his complaint was aggravated instead of being relieved, he thought it right, before returning to his distant home, to take some other advice, and was admitted under my care.

On examination it appeared that a deep gash had been made into the rectum. The edges of the wound were swelled, and showed no disposition to heal. Searching to discover the cause of this, I found an internal aperture at some distance to one side of the incision, which, probably, from being made towards the summit of the sinus, was much deeper than necessary, and in a wrong direction. I divided the parts that lay between the internal aperture and the wound, after which the patient quickly got well.

For a number of years past I have endeavoured to direct attention to the important observations of M. Ribes in regard to the general existence and uniform position of the internal opening of *fistula in ano.* From the case just related, and many others that might be mentioned, it seems that sufficient care is still not bestowed on this point of practice. In the course of last winter I saw a man of rank and consequence who had been operated upon seven years before by a surgeon of this city for *fistula in ano.* He suffered deep incisions and a two months confinement, but did not get quit of his complaint. Sinus after sinus formed, and he despaired of ever being well. I found an internal opening, made the necessary incision, and sent the patient home perfectly sound at the end of a fortnight.

Operation for an external hemorrhoid.—In a treatise on the diseases of the rectum published last year, I thus expressed my sentiments in regard to cutting out a portion of the rectum in order to remove cancerous affections of this part. "It appears that a considerable portion of the rectum, even to the extent of a couple of inches, may be cut out without immediately fatal or any very serious bad consequences in the first instance. But the patient can experience no benefit from this being done, and, in addition to the pain of the operation, must have an impulse given to the morbid action. And if there are any cases in which this excision of the rectum has been followed by a permanent cure, the disease could not have been of a malignant nature. It may seem unlikely that so severe a proceeding should ever be resorted to except in cases the most hopelessly incurable by other means. But, so far from this, however startling and incredible it may appear, the fact is, that removal of the extremity of the rectum has of late years been taught and practised in this city, as the best mode of treating those hemorrhoidal affections which are generally comprehended under the title of *prolapsus ani.*"—P. 129.

The following case, which lately came under my observation, illustrates the circumstances in which this operation is resorted to, and the effects that result from it. About three months ago, a gentleman, between twenty and thirty years of age sent for me, in the hope that I might be able to suggest something for his relief, and thus related the sad history of his sufferings.

In July 1837, he visited a watering-place about thirty miles from Edinburgh. While there he one day had a long walk after taking medicine, and, in consequence, perceived a fold of skin at the orifice of the anus swelled and painful. This external pile, being a new ailment to him, so excited his apprehension as to induce an immediate return to town. He travelled in a carriage, and of course aggravated the complaint by doing so. A surgeon was sent for, who applied leeches and poultices for *four* days, and then intimated the necessity of an operation, which he accordingly performed. This was scooping out a portion of the gut, an inch and a-half in length.

The cavity was stuffed with a sponge, and the patient's legs were tied together. He was not able to turn himself in bed for three weeks, being all this time he said stupified with pain and the large opiates that were administered to him. His urine was all taken away by the catheter. At the end of two months he was able to go down stairs, and then got his dismissal to the country, with instructions to prevent the anus from contracting too much by *occasionally introducing his finger into it.* But notwithstanding all the care that could be used by a most respectable practitioner, who, in compliance with instructions sent to him, attempted to introduce tallow candles, and had some made on purpose of a most diminutive size, the orifice became smaller and smaller, until it would hardly admit a quill.

The patient returned to town, and he supposes had incisions made to enlarge the opening, at least he felt acute pain, and saw blood flow. Weiss's instrument for dilating the female urethra was then introduced, and screwed open for half an hour with excessive agony. This operation was repeated every second day for four months. He then went to the country, and passed a bougie every third or fourth day. Finding no improvement at the end of three months he had returned, in despair of ever regaining his health. He had no evacuation of his bowels unless by taking medicine; and when the desire to discharge the thin matters contained in the gut came upon him he had no power to restrain their escape. He felt constant uneasiness and burning pain about the anus, and through the whole pelvis. He was thin and haggard-looking, and unable for any exertion of body or mind.

ART. VI.—*Contributions to Intra-Uterine Pathology.*—PART I. *Notices of Cases of Peritonitis in the Fœtus in Utero.* By JAMES Y. SIMPSON, M. D. Fellow of the Royal College of Physicians of Edinburgh, Lecturer on Midwifery, &c.

IN the recent progress of pathology it has been amply proved, that the *fœtus in utero* is liable to a considerable variety of morbid states. Of its diseases, some we have reason to believe, are altogether of a functional nature; but in regard to this class of fœtal affections we as yet possess comparatively little information, because, excluded as the fœtus is, during its abode *in utero*, from any of our present means of observation, it is only when its morbid derangements produce symptoms of a very aggravated character, that we are enabled to recognize their existence during the continuance of intra-uterine life. Indeed for nearly all the limited knowledge which we as yet possess of the diseased conditions of the fœtal system, we are indebted principally if not entirely to pathological anatomy; and consequently the diseases of that system with which we are chiefly acquainted, are either such as are organic in their nature, or that lead to an organic result.

Of all the various morbid actions which are liable to occur in the fœtus, *inflammation*, with the different pathological changes which it produces, seems to be one of the most important, both as regards the frequency of its occurrence, and the nature of the effects to which it gives rise. In the present communication, it is my intention to bring forward a series of cases to prove, that one species of inflammatory action, namely *peritonitis*, forms a common variety of fœtal disease, and probably constitutes one of the more frequent causes of death of the fœtus during the latter months of pregnancy.

It may be necessary, however, to premise, that the investigation by pathological anatomy, of the presence and effects of inflammatory action, and indeed of all other morbid changes in the fœtus, is beset with unusual difficulties. When the fœtus labours under any morbid state which happens to prove fatal during its abode *in utero*, there generally elapses an interval of from five to twenty days, before the uterine contractions, necessary for its expulsion, supervene. During this period a number of changes are liable to occur, which are calculated to mask or destroy the usual morbid appearances left by inflammation. Pathologists are now becoming fully aware that various injections, colorations, serous and sero-sanguinolent effusions and softenings of different tissues and organs, more or less perfectly resembling the corresponding alterations produced in the same parts by inflammation, are liable to be met with in the dead body of the adult, as the effects of merely chemical and physical causes acting during the latter hours of life, or after death. In the case of the dead fœtus retained *in utero*, we have not only the same causes producing the same results, but these results increased considerably in their degree and intensity by the longer period during which their causes are generally allowed to operate: and, besides, we have further to take into account the additional effects of the endosmosis of the *liquor amnii*, and of the blood and other fluids of the fœtus through the dead tissues of its body, and the continued maceration of these tissues in the effused and transuded fluids in which they are placed. In consequence of the operation of these and other causes, we have constantly found in our examinations of fœtuses that had died several days before birth, the heart and large blood-vessels almost entirely emptied of blood, the different serous cavities of the body filled by an abundant sero-sanguinolent fluid, and the same fluid often collected in the general course of the cellular tissue, but more particulary in that of the scalp, while at the same time the different solid tissues are reduced more or less in consistence, and altered in colour and physical appearance. We have seen tissues and membranes which, from the morbid secretions existing upon them, we knew to have been the seats of acute morbid action immediately previous to death, macerated and blanched, and sometimes variously discoloured from the imbibed bilious, intestinal, and other secretions; whilst, on the other hand, we have found other membranes and tissues of the body that had in all probability not been the seat of any morbid state during life, more or less deeply reddened, injected, tumefied, and softened. Indeed, we had not been long engaged in this field of pathological inquiry, before we became fully convinced, that we were not entitled to consider any tissue or organ in the dead fœtus, as having been the seat of inflammation during life, unless we could detect in that tissue or organ, one or other of those characteristic morbid secretions, or more distinct permanent changes of structure, which are recognized as the distinctive organic results of inflammatory action, such as the deposition of coagulable lymph, and the indurations, thickenings, &c. to which this deposit gives rise, the effusion of more or less serous or sero-albuminous fluids, or of true purulent matter, ulceration, &c. Accordingly, in the details of the following cases it will be observed, that we have only entered as genuine examples of inflammation of the peritonæum, those instances in which there existed upon that membrane, or in its cavity, one or other of the organic products of inflammation to which we have just alluded, but more particularly effused coagulable lymph, and the adhesions and pseudo-membranes which such lymph so readily produces, when thrown out upon serous surfaces.

CASES OF ACUTE PERITONITIS.

CASE I.—On the morning of the 15th October 1836, my attendance was requested at the Lying-in Hospital in a case of twins. The first child had been born after a natural and easy labour. On examination I found the second child presenting by the head, and labour pains having spontaneously recurred, it was expelled in about forty minutes after the birth of the first. The first-born child was living, healthy, and well formed. The second had apparently been dead for some days; its cuticle could be easily peeled off, and was raised into bullæ at various parts by a sero-sanguinolent effusion beneath it. Its body, however, was by no means emaciated, but as plump and fat as that of the first child.

Being unable to discover in the portion of the double placenta belonging to the second child any disease that could account for its death, I opened its body, twelve hours after birth, in presence of Mr Scott, house-surgeon to the hospital, and Dr Pollexfen. Besides the subcuticular effusions already alluded to, there was a considerable accumulation of serous and sero-sanguinolent effusion in the cellular tissue in different parts of the body, and in the cavities of the pleura, pericardium, and peritonæum. Over the surface of this last mentioned membrane (the peritonæum,) there were also deposited several isolated patches of soft coagulable lymph, which had produced at various points adhesion of the folds of the intestines to one another, and to the internal serous surface of the abdominal parietes.

In this case the consistence and other characters of the effused coagulable lymph were such as sufficiently indicated that it was the result of recent and acute peritoneal inflammation. That the child had perished of an acute disease was still further attested by the general plump condition of its body, and by the large deposit of fat in the subcutaneous tissue and other parts, which was observed on dissection.

The mother, Ellen Cornwall, was a healthy young woman, of twenty-two years of age. It was her first pregnancy. She was not aware of having received any physical injury, or of having experienced any particular mental emotion, that could enable her in the least degree to account for the death of the second child; and her feelings had never led her to suspect that any change had occurred in the contents of the uterus in the last periods of pregnancy.

CASE. II.—I was sent for (April 3d 1837,) by Dr Allan, house-surgeon to the Lying-in Hospital, to a case of difficult labour which he was attending in Blackfriars Wynd. The left arm was presenting, and the membranes being entire and the passages well dilated, I at once passed up my hand into the uterus, turned, and delivered the child by the feet. It had been evidently dead for some time, as shewn by the detachment of the cuticle from the abdomen and other parts. From the appearance of the child and the calculations of the mother, it seemed to have been born a few days before the seventh month.

On opening the body next day, (Tuesday 4th,) along with Dr Allan, Dr Charles Bell, and Dr R. Paterson, we found an effusion of reddish serum within the sacs of the pleurae and pericardium; but the lungs and heart were healthy. There was a similar effusion within the abdominal cavity; and on the peritonæum covering the convex surface of the liver, we observed various distinct patches of coagulable lymph, with corresponding points of a similar effusion upon the serous membrane lining the abdominal parietes and diaphragm. The adhesions formed between the opposed surfaces of the peritonæum at the points of the deposit were so slight, and the coagulable lymph forming them so soft in consistence, that they readily gave way under the manipulations required for exposing the contents of the abdomen. The mesenteric glands were large, some of them equalling in size the half of a small split pea.

The mother of the child (Mrs Bean) was 36 years of age, and had borne six living children, besides having had a miscarriage several years previously, and another on the 13th of June last (1836.) In this last abortion the child was expelled about the sixth or seventh month, and she herself attributes its death, and that of the fœtus whose history I have given, to an excess of hard labour, and more particularly to the exertion required in carrying loads of water up a long stair of three stories. In her first pregnancies she had not been exposed to such toil. In her last pregnancy the motions of the fœtus had continued from the first of January, when they were first felt, up till eleven days before she was delivered. For two or three days previous to this last date, it moved " a great deal more (to use her own expression) than usual."

Case III.—December 23, 1837. I inspected along with Dr Banks and Mr Stewart, the body of a dead-born child, which had been sent to me for dissection on the previous day by Mr Brown. It was a fœtus of about the seventh month; and the state of the cuticle and tissues in general shewed that it had been dead for some time before birth.

The thoracic organs were healthy, though there was the usual quantity of pseudo-morbid reddish serous fluid in its serous cavities. On laying back the abdominal parictes, a patch of soft coaguable lymph was seen on the abdominal peritonæum near the right iliac region, and on further examination this was found to have formed a portion of a quantity of the same deposit, effused around the caput cœcum and its vermiform appendage. The peritonæum covering the liver and other remaining parts of the intestinal tube seemed healthy; but the peritoneal coat of the spleen was covered, more particularly on its outer or convex surface, with a thickish layer of coagulable lymph, which united it to the corresponding portion of the abdominal parietes by a large web of false membrane.

Mary Campbell, the mother of this child, is a strong and healthy young woman of 22 years of age. She had previously borne one living child. About a fortnight before the birth of the dead-born fœtus above described, she had a fall down stairs; and to this accident she at the time ascribed the death of the infant, as it ceased to move in a day or two afterwards. At the present date (July 15th) she cannot recollect if the motions of the fœtus were greater than natural after the fall, previously to their final cessation.

Case IV.—On dissecting (January 8, 1838,) the body of a dead-born male fœtus which had been for two or three months in my possession, I found the most marked effects of inflammation in almost all parts of the peritoneal cavity.*

The upper or convex surface of the liver, but more particularly of its right lobe, adhered to the corresponding surface of the diaphragm. The left edge of its left lobe was united by effused lymph to the spleen, and this latter organ was further morbidly adherent along its external surface, partly to the large intestine, and partly to the abdominal peritonaeum. The omentum was connected at one or two points by coagulable lymph, to the concave surface of the liver, and to the inferior part of the spleen. The small and large intestines were agglomerated together into a mass, and their corresponding surfaces intimately united at numerous points by effused lymph. In consequence of these adhesions the jejunum was intimately united to the sigmoid flexure of the colon. Both the *tunicæ vaginales* of the testes still communicated with the cavity of the peritonæum, and the serous surface of the left one was partially coated by a layer of coagulable lymph, or thin false membrane. The other cavities of the body were healthy. The child was not in an emaciated state.

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* Recent preparations of the abdominal viscera, showing the particular morbid appearances described in Cases III. and IV., were shown at a meeting of the Medico-Chirurgical Society, and are still preserved.

I regret that I have not any notes of the history of the mother of this child.

Case V.—July 28, 1838. I examined in the Lock Hospital, along with Drs G. Weir and Allan, and Messrs Scott and Bannatine, the body of a child of which one of the patients in the house had been delivered on the preceding evening.

The cuticle was loose and easily separated. The cavities of the pleuræ and pericardium were filled with a reddish serous effusion; but these membranes, with the exception of numerous points of purpurous effusion beneath them, were otherwise quite healthy. The purpurous spots were seen both under the pleura pulmonalis and costalis. The cavity of the peritonæum contained upwards of an ounce of a still deeper coloured reddish serous effusion, along with one or two clots of blood, which appeared to have come from a ruptured point in the lower surface of the right lobe of the liver. The edges of the laceration were partly reunited by coagulable lymph. A considerable portion of the liver in the neighbourhood of this part was much congested, more deeply coloured, and softer than the remainder of the viscus. The gall-bladder was filled with a quantity of viscid bile, and its coats were thickened to about a line and a half or two lines, by a serous effusion into its cellular tissue. The surface of the abdominal peritonæum was coated by a beautiful lace-like and adherent layer of tough coagulable lymph, which was of considerable thickness at some points, and threw out long lines or films that were in contact with the surface of several of the abdominal viscera, but not apparently in any place adherent to them. This layer of lymph was particularly abundant in the left hypochondriac, and in the iliac regions. Several loose long films and masses of it were seen also among the intestines and upon the mesentery. The mesenteric glands were large. All the other abdominal and pelvic organs were healthy, with the exception of one of those small pediculated serous cysts adhering to the right broad ligament of the uterus, which are so common in this part of the body of the adult female.

Helen Grey, the mother of the child, is 19 years of age, and naturally of a healthy constitution, but she has now suffered under four different attacks of venereal disease. About fifteen months ago she had severe ulcerated sore-throat and other secondary symptoms. During the course of the present pregnancy she entered (April 5th) the Lock Hospital under my care, affected with an ulcer and gonorrhœa of five days standing. She was dismissed cured on the 20th of the same month. She re-entered the hospital 12th July, suffering under another recent attack of gonorrhœa, and with two slight ulcers; but was nearly well again when labour pains supervened on the 27th. The *liquor amnii* was in great quantity. The placenta was pretty firm and healthy, and had not the bleached anæmic appearance which it usually presents in cases in which the child has been dead for a week or two. The motions of the fœtus were not very sensibly felt by the mother after the 13th of July, but subsequently to that period they were repeatedly discovered by applying the hand to the abdomen, and the fœtal heart was most distinctly heard by myself and several of the pupils of the hospital, only five or six days before delivery. I counted its beats at that time at 25 in the 10 seconds. The mother was not aware of having been exposed, during the latter periods of pregnancy, in any such way as could account for the death of the fœtus. She had an abortion about eighteen months ago, when passing through an attack of typhous fever.

Case VI.—On opening a dead born male fœtus of the seventh month, which had presented by the breech and been attended by Dr Allan, I found, along with that gentleman and Messrs Scott and Bannatine, the following morbid appearances, on inspecting the body the day after birth. (July 29th 1838.)

The cuticle was separated in many parts, and could be easily removed. The face of the fœtus was swollen and deformed with œdema; and the upper extremities, but particularly the hands, were also anasarcous. The feet and legs were likewise dropsical, though in a less marked degree, and there was a considerable amount of hydrocele. The cellular tissue of the scalp and loins was infiltrated with the usual reddish serous effusion. The cavities of the pleuræ and pericardium contained a similar fluid, but these serous membranes themselves, as well as the lungs and heart, were perfectly healthy. The cavity of the peritonæum was filled with a considerable quantity of the same effusion, and the surface of the abdominal peritonæum, more particularly on the right side, was covered with a lace-like layer of adherent coagulable lymph, which presented appearnnces and characters very exactly resembling those seen in the preceding case. Several masses and filaments of lymph were also seen among the convolutions of the intestine, and produced a pretty strong adhesion between them at one or two points. The spleen was large, and four drachms, thirty-five grains in weight; its surface had several patches of lymph upon it, and the inferior portion of the organ was intimately and extensively united by morbid adhesions to the larger omentum. The mesenteric glands were large and well developed. The other abdominal organs were healthy.

The mother, Elizabeth Henderson, is a robust woman of 42 years of age. The present is her fourth child. The first was alive and at the full time. The second was believed to be at the full time, but was born dead. The third, like the present, was at the seventh month, and also dead at birth. She confesses to having been affected with venereal disease, but would not afford such information as to enable us to judge of the form of the affection, or the particular period at which she suffered from it. She attributes the death of the present child, to her having fallen down a flight of stairs about a fortnight before delivery. The placenta was adherent.

Case VII.—I had an opportunity of examining (February 21st 1838) the following case of fœtal peritonitis along with Dr Fisher, under whose care the mother was delivered.

The appearances of the body of the infant were such as indicated that it had been dead for sometime *in utero.*

The epidermis was peeling off in various parts. The muscles of the limbs were soft and flabby, and the periosteum was separated from the bones at various points. There was no serous effusion into the subcutaneous cellular tissue of the trunk and extremities, but the sero-sanguineous extravasation beneath the scalp, so frequent in dead and retained fœtuses, was strongly marked. Some effusion existed in the thoracic serous cavities, but the lungs and heart were healthy in structure. In the cavity of the peritonæum there existed a turbid effusion, with large flakes of coagulable lymph in it. On the upper or convex surface of the liver, a few non-adherent patches of lymph were observable; and there was the same morbid effusion on the lower surface, particularly along the edge of the left lobe, where the lymph was firmer and adherent. The spleen had numerous patches of slightly adherent lymph scattered over its peritoneal surface. Similar patches were seen on the peritonæum of the colon, and produced at one point, near the sigmoid flexure, adhesion of two of the contiguous folds of that bowel. The peritoneal surfaces of the small intestines, mesentery, and abdominal parietes, had numerous flakes of coagulable lymph deposited upon them. Patches of lymph were adhering to the right Fallopian tube. The mesenteric glands were large. The mucous membrane of the stomach and intestines appeared healthy.

Ellen Scott, the mother of this infant, is a stout young woman of 20 years of age; and had three years before a dead-born child at about the seventh month. It was believed to have been dead for some time before its expulsion from the uterus. In the present pregnancy the mother calculated that she was between the sixth and seventh month of utero-gestation when labour came on. She had not felt the child move for about twenty-three or twenty-four days, before delivery, but during the two days preceding the cessation of its motions, these motions, she alleges, were distinctly much greater than usual. She cannot account in any way for the death of the child, except it be that she had a fall upon her right side the day on which its motions ceased; but the increased and morbid movements of the fœtus had been sensibly felt during the whole day preceding this accident.

Her general health was good during pregnancy, with the exception of occasional nausea, vomiting, and pain in the back. She denies that she ever suffered under any form of venereal complaint.

Case VIII.—I inspected (January 10th 1838) along with Dr Fairbairn and Dr John Reid the body of a fœtus that had died some time before birth. Its cuticle was separating in different parts, but its cellular texture was not much infiltrated.

The pleura and pericardium contained a reddish serous fluid, but the thoracic organs themselves were healthy. On opening the abdomen a considerable quantity of sero-sanguinolent liquid escaped, having numerous flocculi and large shreds of coagulable lymph floating in it. Similar shreds of loose coagulable lymph were found lying upon the peritoneal surface of the intestines at various points, but nowhere did this lymph seem to be adherent to that surface. On passing the handle of the scalpel among the loose intestines, it came out covered with patches and shreds of the substance in question.

The mother of the child (Mrs Macmillan, aged 26,) had been exposed to much fatigue and hardship during pregnancy, and her health had been very infirm during the whole period. The movements of the child ceased altogether fifteen days before its birth. On the day of their cessation it had moved with great and unusual violence, as if (to use the patient's own expression) "the infant were coming out at her side." Two days previous to this occurrence, the mother had been obliged to sleep in wet clothes after a long day's travelling on foot. She had borne two living children previously.

Case IX.—In a male fœtus between the fourth and fifth month, which I examined (July 7th 1838) along with Dr Allan and Mr Bannatine, a few hours after its expulsion from the uterus, the peritoneal cavity contained a quantity of serous effusion, having numerous flocculi and shreds of coagulable lymph floating in it. Patches and small masses of this lymph were deposited in considerable abundance upon the peritonæum, covering the abdominal parietes and different abdominal viscera, but nowhere did we find any of this exudation adherent to the serous surface. The left pleura contained a quantity of clear, limpid, reddish-coloured serosity, without any flocculi floating in it, or deposited upon the surface of the membrane. The fluid in the cavity of the right pleura was turbid, and contained numerous minute masses of animal matter, the source of which was readily traced to a softened and pulpy condition of the corresponding lung, and to part of the broken down substance of the organ having escaped through a rupture in the pleura. Whether this state was the effect of intra-uterine disease, or of physical injury during or after birth, seemed to us impossible to be determined.

The mother, Frances Gordon, a healthy young woman of 18 years of age, had been under my care in the Lock Hospital from the 12th of April 1838 to the 26th of May. She was then suffering under a recent and severe attack of gonorrhœa, and had the remains of a chronic syphilitic eruption upon the skin. During her pregnancy she had been comparatively well in her general health up till about a fortnight ago, when she had several attacks of chilliness and slight fever, with pain in the uterine tumour, increased by stooping. These symptoms lasted for three or four days, but were not so severe as to confine her to bed. Her last menstruation occurred five months and a few days ago. The fœtus was six ounces and two drachms in weight, and exactly six inches and a half in length. It had seemingly been dead for some days. The placenta was healthy, but in that white anæmic state which is generally seen in those cases of abortion and premature labour in which the infant has been for some time dead *in utero*.

Case X.—A case of peritonitis similar in its anatomical character to the two last, is mentioned by Cruveilhier as having been met with by him, in the instance of a child that was born with the abdomen large, and evidently containing a quantity of liquid. Death occurred about three hours after birth. On opening the abdomen there was found a great quantity of yellowish serosity, with some pseudomembranous flocculi in the cavity of the peritonæum. The intestines and stomach were extremely contracted. The large and small intestines were filled with meconium. The stomach contained thick white mucus like coagulated milk, (but the child had not swallowed a drop of that fluid,) and this appearance of the gastric mucus, may perhaps, M. Cruveilhier suggests as a query, be the effect of inflammatory action in the organ. The internal surface of the stomach presented a very marked punctuated redness, in some parts of an irregular form, in others disposed in lines. The liver was large, and the spleen also increased in size, and dark coloured. The gall-bladder contained only some colourless mucus. Indurated and enlarged lymphatic glands surrounded the hepatic duct.

The lungs contained numerous small but unequally sized red spheroidal masses of inflammatory induration, like crude tubercle, both on their surface and in their substance.*

Case XI.—For the details of the following interesting case of congenital peritonitis, I am indebted to my friend Mr Scott, who had an opportunity of seeing the child during life, and of examining its body after death, with Mr Logan.

During the act of parturition, after the birth of the head, the expulsion of the body of the infant was prevented for some time by the distension of the abdomen. On examining the child shortly after birth, Mr Scott found the belly marked with spots of purpurous or hemorrhagic effusion, especially at the sides; it was very tense, and fluctuation was indistinctly felt. Both hands were œdematous, the left more so than the right. There was no œdema of the lower extremities. The child was plump and fat, but cried only in the feeblest manner, and kept its legs firmly drawn up. It survived for twenty-eight hours only after birth; and, before death, œdema of the scrotum and penis took place, with an erysipelatous blush extending to the lower part of the abdomen. The bowels of the child had never been opened, though castor oil had been twice administered to it; and little, if any, urine whatever had been evacuated. The infant was large, and had evidently reached the full term of utero-gestation.

On opening the body after death, some air and a quantity of fluid escaped, when an incision was made into the cavity of the abdomen. " Marks of inflammation (as Mr Scott observes in the notes with which he has favoured me) were obvious on the surfaces both of the abdominal and intestinal peritonæum, and from these surfaces I collected about a tea-spoonful of flaky puriform matter, exactly resembling that which I have found in my dissections of adult females who have died of puerperal peritonitis." The intestinal canal was pervious throughout, but the stomach, upper intestines, and cæcum, were much distended with air.

The left lung was not at all inflated: the right seemed to have been fully used. Spots of purpura were seen on the pleura of both sides. The internal surface of the contracted urinary bladder was covered with similar spots.

Mrs Peters, the mother of this infant, had previously borne three living children. A fortnight before her confinement, with the dead-born child above described, she was exposed to cold and wet in walking from Portobello at night. On her reaching home she was seized with shiverings, which recurred frequently during the two following weeks. She did not feel the motions of the child after the night on which she first had rigors, and she herself believed that it had been killed by the exposure to which she had been that day subjected.

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* Anatomie Pathologique, Livrais. xv. p. 2.

Case XII.—In a memoir read to the Royal Academy of Medicine in 1825, M. Veron, among other cases proving the existence of inflammatory and other diseases in intra-uterine life, adduced an instance of peritonitis, analogous in several respects to the case which we have last detailed. The case was observed in 1822, along with M. Baron, on the body of an infant who had been brought dead to the Foundling Hospital at Paris. From the state of the umbilical cord, and the appearance of the child, it seemed scarcely to have survived a day after birth. On opening the peritoneal cavity, it was found to contain a quantity of purulent serosity, but not in any great abundance. There was an albuminous layer or deposit of coagulable lymph of about a line in thickness on the surface of the cavity, and so adherent to the membrane that all the abdominal organs and intestines were glued together, and formed only one mass. The serous membrane itself was intensely red. The intestinal mucous membrane presented no such colour.*

Case XIII.—In the Journal General de Médecine, M. Brachet has detailed the following well-marked case of acute inflammation of the peritonæum and substance of the liver, in a fœtus which was born dead at the full term of pregnancy. The body of the child was large and well developed, but its flesh was soft, its abdomen large and distended, and the skin had a yellow tint.

On inspection, the contents of the cranium and thorax were found healthy. The cavity of the peritonæum contained some reddish serosity, and its right superior part was occupied by some filamentous shreds of coagulable lymph, forming the rudiments of false membranes. The superior or convex surface of the liver was rugous, and adhered over almost all its right lobe to the corresponding portions of the abdominal parietes, by means of patches of pseudo-membrane that were not yet organized. The liver itself was very red and larger than natural; its tissue was friable and softened in its enlarged right lobe; on dividing it, an inodorous grey reddish fluid resembling purulent sanies, flowed from the cut surface. The other abdominal viscera were healthy, with the exception of a reddish state of the omentum.

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* Observations sur les Maladies des Enfans, (Paris 1825,) p. 17.

The mother of this infant had, during the nine months of pregnancy, experienced only the usual indisposition attendant upon that state. Lively fœtal motions had been felt up to the middle of the eighth month. From that period till the supervention of the pains of labour they had become less and less sensible, and at last ceased altogether during the act of parturition, which was extended to eighteen hours. It was her first pregnancy. The placenta was very large and slightly gorged with blood, but in other respects healthy.*

Case XIV.—In 1821, a well-marked case of fœtal peritonitis and enteritis was observed by Chaussier in the Hospice de la Maternité, and reported by him to the Societé de Medecine.†

The subject of the case, a male child, born about the seventh month, was well formed, and presented even a degree of plumpness. The abdomen was more distended and elastic than natural; and a glyster was given to it and returned with little effect. In the subcutaneous cellular tissue there was a slight serous infiltration, more particularly in the lower extremities. Its respiration was laboured, and it died in an hour and a-half after birth.

On opening the abdomen about ten drachms of a yellowish viscid serosity, containing some small flocculi, flowed out. The omentum appeared somewhat thickened. The convolutions of the small intestines were so united and adherent to one another by a tenacious layer of concrete lymph, that they were formed into a single roundish mass, encircled by the course of the colon. On examining more minutely the small intestines, the cellular coat was found pale, thickened, and friable, and penetrated by a semifluid whitish matter or lymph, which separated it from the peritoneal coat. The cavity of the intestine was filled with greyish mucus; and the mucous membrane appeared thickened, and traversed here and there with small patches or circles of vascular injection. The other viscera of the abdomen, and those of the head and thorax, seemed healthy.

The mother of this child was a woman of 22 years of age, and pregnant for the first time. She had always enjoyed the best health, and had not met with any accident, or experienced any disagreeable symptom during the whole course of pregnancy. The labour was natural, speedy, and easy.

Case XV.—XVII.—After quoting the foregoing case (XIV.) as given by Dugès, M. Billard, in his excellent treatise on the Diseases of Children, adds, that he "had found peritonitis to the same degree in three infants who died a short time after birth, and who were all fresh and vigorous. In none of these three cases had any symptoms of the peritonitis been observed during life, and it was only by *post mortem* inspection that the cause of death was discovered. In one of them there was an abundant sero-purulent effusion, and the intestinal convolutions, which were very red exteriorly, were beginning to contract adhesions to one another." M. Billiard does not state what particular morbid appearances were presented by the other two cases.*

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* Journal General de Medecine, Tom. cii. (1828) p. 43.

† Bulletins de la Faculté et de la Societé de Medecine, Tom. x. (1821) p. 242. The same case is mentioned by Billard, (p. 242,) as described by Dugès in his Recherches sur les Maladies les plus importantes, &c. des Enfans nouveau-nés. Paris, 1821.

CASE XVIII.—In the slight summary which Professor Carus of Dresden has given, in his well-known work on Midwifery,† of the diseases of the fœtus, he states, "I have observed on the peritonæum of several children born dropsical, perceptible inflammation in several places, and once even the effusion of plastic lymph and adhesion."

CASES OF CHRONIC PERITONITIS.

CASES XIX. XX.—M. Billard, in the work already referred to, has alluded to two cases that had fallen under his own observation, of infants who died shortly after birth, and in whose bodies he found coagulable lymph effused upon the peritonæum in such a solid form as to indicate the existence of an inflammatory action which had run through its different stages during intra-uterine life. The first of these infants died in eighteen, and the other in twenty-four hours after birth; and in both solid, and apparently old, adhesions existed among the different intestinal convolutions. In one of them, the anterior or convex surface of the liver adhered by four very tough, although very slender filaments to the anterior wall of the abdomen. One of the infants was lean, small, and very pallid; but the other had the usual plumpness of the new-born child. ‡

CASE XXI.—In the second volume of his Pathological Anatomy, M. Andral mentions an instance in which he found all the intestines agglutinated together by intimate and very firm cellular adhesions, (the result, as we presume, of old peritonitis,) in an infant only two days old.§

CASE XXII.—The best marked case, however, of chronic peritonitis in the fœtus which we have been able to meet with, is one casually described by Morgagni. The subject of the case was an infant, who was brought to him with the umbilical cord not tied, and consequently that had probably not lived for any length of time after birth. With respect to size, it seemed to be less than the full time. The body was not in any way decayed or putrid.

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* Traité des Maladies des Enfans, (Paris, 1837,) p. 479.

† Lehrbuch der Gynäkologie, Bd. ii. S. 251.

‡ Traite, &c. l. c.

§ Anatomie Pathologique, Tom. ii. p. 737.

The lungs were of a red colour, degenerating into a dark-brown, and parts of them when laid upon water immediately sunk to the bottom.

The abdominal cavity was filled by a large quantity of black blood, which was subsequently traced to have escaped from an erosion or laceration of considerable extent upon the concave surface of the liver. The whole of the upper or convex surface of the liver adhered to the diaphragm and corresponding parts of the abdominal parietes. At first sight the mesentery and the intestinal tube seemed (with the exception of the rectum and lower part of the colon alone) to be entirely wanting; but, on further examination, these apparently deficient parts were found agglomerated up into a small mass, under the lower surface of the liver, and covered over by a false membrane. This pseudo-membrane was of considerable thickness, of a tenacious consistence, and rendered rough by a kind of arenular deposit. There was meconium in some of the upper intestines, but none in the rectum.[*]

GENERAL SUMMARY OF RESULTS.

The various cases which I have cited in the preceding pages will, I believe, be found to afford sufficient evidence for establishing the pathological fact, that the *fœtus in utero* is occasionally the subject of peritoneal inflammation; and by an analysis of the same and of other additional data, I shall now endeavour to trace out some of the leading and general circumstances regarding the morbid appearances left by the disease,—the causes which are liable to produce it,—the symptoms which most frequently indicate its presence,—its most common terms of duration,—the periods of gestation at which it most commonly occurs, —and its effects upon the life of the fœtus. We reserve the discussion of its more indirect effects upon other morbid states of the abdominal organs for a future occasion.

MORBID APPEARANCES OBSERVED ON DISSECTION.

The nature of the morbid inflammatory effusions or products observed in the cases of fœtal peritonitis which we have related, has varied considerably.

In two cases, (XVI., XVII.) the particular morbid appearances which were met with are not specified. In three, (XI., XII., XV.) the morbid effusions into the peritoneal cavity presented more or less of a puriform character, combined with the presence of coagulable lymph; and in all the remaining cases, this latter morbid product (coagulable lymph or fibrine) was found either alone, or accompanied (as in cases I., II., V., VI., VII., VIII., &c.) with a larger or smaller quantity of serous effusion. The coagulable lymph again has been seen in different cases under different forms. In three instances, (VIII., IX., X.) it consisted of unadherent flocculi and membranous shreds of various sizes floating in the serous effusion, or lying on the surface of the peritoneal membrane; in others (I., II., XIII., XVI.) it was still soft and pulpy, but was attached to the serous surfaces on which it was deposited, and produced even slight and lacerable morbid adhesions between some of the opposed points of these surfaces; and in four cases (V., VI., VII., XXIII.) it was found to present both of these characters, being in part adherent and in part still loose and unattached to the serous membrane.

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[*] De Causis et Sedibus Morborum, Ep. lxvii. §. 17.

In another set of cases again, (III., V., VI., XIV.) the adherent coagulable lymph was still more advanced towards the process of organization, and had assumed a somewhat firmerand more membranous character; in some instances being effused in such abundance as almost to agglutinate together into one mass, (IV., XII., XIV., XXI.) a greater or less number of the abdominal organs covered by the peritoneum, or, where the effusion was more partial and limited, appearing in the form of a membranous (III.) or lace-like (VI.) web, or of threads or filaments (XIX.) passing between some of the morbidly attached surfaces and organs.

Lastly, in the more chronic cases the effused coagulable lymph may, as we have seen, pass into a still more solid and pseudomembranous form (XIX., XX., XXI.); or appear, as in the remarkable case quoted from Morgagni, under the character of a false membrane investing almost all the abdominal viscera, and containing in its substance some morbid bodies, not improbably analogous to those tubercular deposits which are so often observed in cases of chronic peritonitis in the adult, whilst at the same time this morbid 'membrane had exercised upon the included viscera that contractile power which is possessed in a greater or less degree by all organized lymph, whether it exist in the form of granulated cicatrices upon the external or internal surfaces of the body, or as organized false membranes, or morbidly developed fibrous tissue.

Complications with coexistent inflammatory disease in other abdominal organs and tissues have been observed in only a very few of the cases. In one instance (XIV.) besides the layer of coagulable lymph upon the free surface of the peritonæum, there was a considerable effusion of semifluid whitish matter, (concrete albumen, *Dugès*,) into the cellular tissue of the smaller intestines, producing a degree of thickening and friability in the coats of the bowel. In a second case, (XIII.) the peritoneal inflamation was accompanied by hepatitis in the stage of softening and incipient purulent infiltration; in another to be presently quoted (XXIII.) the morbid changes in the same organ were of a more chronic character, the coats of the liver being opaque and somewhat thickened, and the organ itself reduced in size. In one instance (X.) there were found some of those small masses of inflammatory induration in the lungs which form the most common type of pneumonia in the fœtus and infant.

In two cases (V, XXII.,) there were in the peritoneal cavity coagula of blood, which had apparently proceeded in both instances from a rupture or laceration upon the concave surface of the liver. In the first of these cases (V.) the edges of the laceration had again become agglutinated together, a fact shewing that the lesion must have occurred several days before death; and the congestion observed in the surrounding hepatic tissue was so great, that it might probably have acted as the predisponent, if not as the exciting, cause of the laceration.

In two instances (VI. X.) the spleen was unusually large, and in a case mentioned by Petit-Mengin,* which we shall have occasion to quote in our next communication as an instance of the combination of ascites and peritonitis in the fœtus, the spleen was enormously hypertrophied, and had its peritoneal surface morbidly adherent.

In four of the cases (II., V., VI., VIII.,) I have mentioned the very large size of the mesenteric glands. This is an appearance which I have now met with so often in my dissections of dead-born children, that I should feel inclined to regard it rather as a state natural to the fœtus than otherwise. Certainly, according to our own experience in such cases, the glands, if morbid in any way, are simply hypertrophied, and do not, as Oehler† would seem to imply, show some of the characters of scrofulous degeneration.

In two of the cases which I have related (V., XI.,) minute hæmorrhagic effusions, similar to those seen in *Purpura Hæmorrhagica*, were observed in some of the internal organs of the body. This particular morbid appearance would, according to the experience of Cruveilhier,‡ seem to be not unfrequent in the bodies of fœtuses who have died *in utero*.

The *extent* of the inflammatory action in fœtal peritonitis, as shown by the post mortem appearances, appears in the majority of cases to have been pretty general over the peritoneal surface; but occasionally, (as in cases II. and III.) we find it more or less limited to particular localities and portions of the membrane; and we shall afterwards have occasion to point out the pathological importance of this fact in reference to the production of congenital hernia by local inflammatory adhesions formed between the peritoneal surface of the descending testicle and some of the contiguous abdominal viscera.

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* Gazette Medicale de Paris, Juin 1833.

† Prolegomena in Embryonis Humani Pathologiam, p. 34 and 44.

‡ Anatomie Pathologique du Corps Humain, Livr. xv.

Exciting Causes of Fœtal Peritonitis.

On the nature of the causes of peritonitis and other inflammations in the fœtus, we as yet possess very little accurate information. Internal inflammatory diseases in the adult are comparatively seldom the result of noxious agencies applied directly to the organ or tissue which is the seat of the inflammatory action, but are generally the result (as we think might be shown if this were a fit opportunity for discussing such a subject,) of a variety of intervening morbid alterations which originate in the first instance in derangements of the secretions and other functions of the part to which the external exciting power is applied, and that subsequently react through it upon the economy in general, or upon that particular part of it in which the inflammation ultimately becomes located. These intermediate morbid states seem further capable, in different instances, of being produced by very different morbific agencies; and may probably in the fœtus, as in the adult, occasionally consist in, or be excited by derangements in some of the natural secretory and excretory actions of the fœtal economy, as in the non-elimination of different matters from the fœtal circulation in the placenta of the mother, or in the introduction through the same channel of morbific substances previously existing in her system. We can have little doubt but that in the latter mode, the particular poisons exciting the specific inflammations characteristic of plague, small-pox, syphilis, &c. are conveyed from the mother to the fœtus in those cases in which the fœtus is attacked *in utero* with these diseases.

Causes more particularly referrible to the conditions of the mother.—In some of the cases of fœtal peritonitis which I have detailed, the mother had been exposed to severe labour (II.,) or fatigue and exposure to cold and moisture, (VII., XI.,) or bodily injury, (III., VI? VII?) during her gestation; in two cases, (VIII., XXIII.,) there existed general ill health during the whole of that period; and in one of these, (XXIII.,) the mother herself was twice attacked with peritonitis during the course of pregnancy. In two of the cases (V., IX.,) the mothers had an attack of gonorrhœa during the period of utero-gestation, along with a syphilitic eruption in the one instance, (IX.,) and ulcers in the other, (V.) A third, (VI.,) confessed that she had suffered from venereal disease; and the line of life pursued by others of the number, (III , VII., and I believe also IV.,) was such as certainly freely exposed them to syphilitic infection. Indeed it appears to me highly probable, from the investigations which I have already made upon this point, that a great proportion of those children of syphilitic mothers that die in the latter months of pregnancy, may yet be shewn to have perished under attacks of peritoneal inflammation.

But before attributing to this, or to any of the above causes on the part of the mother, too great and exclusive an influence in the production of peritoneal inflammation in the fœtus, it must be recollected, that in other instances which we have brought forwards, as, for example, in cases I., XIII., XIV., XXIV., the mother was not aware of being in any way exposed to any known morbific influence, and had not been the subject of any particular indisposition, either during pregnancy, or antecedently to it. Besides, that the disease in the fœtus may occur altogether independently of any morbid state of the maternal system, and from causes strictly originating in, and confined to the fœtal economy itself, would seem to be shown by the first instance which we have related, where, in a case of twins, *one child only* was affected, whilst the other was healthy and lively, although they were connected to the mother by one common placenta, and consequently were both exposed equally to any morbific influence, which the state of her economy might have been capable of exerting upon them. In some of the instances we have cited, the children born with peritonitis, were, as in the case (I.,) just now referred to, the product of a first pregnancy, and the offspring of a healthy mother, (XIII., XIV.) In three instances the mothers had previously borne one or more living children, (III., VII., XI.) But others of them, (II., III., V., VI., VIII.,) had already previously suffered from the abortion or premature delivery of a dead fœtus or fœtuses. In none of these latter instances have I as yet had an opportunity of examining two of the dead-born children of the same parents, to ascertain whether there may have been an identity of intra-uterine disease in them, but it seems not improbable, from other ascertained facts relative to intra-uterine pathology, that in certain cases such an identity of morbid action might be traced.

Causes referrible to the conditions of the Fœtus.—In some instances peritonitis in the fœtus would appear to be directly induced by morbid physical conditions of the abdominal viscera, and by irritant fluids accidentally applied to the peritoneal surface itself. Legouais and Dugès* are said to have met with cases in which peritonitis in the fœtus had been apparently produced by an internal strangulation of the intestines. When the urethral canal of the fœtus has been impervious, the urinary bladder has often been found greatly distended with an accumulation of urine, as seen in numerous cases recorded by Ruysch, Portal, Sandifort, Meckel, Vrolik, Steghlehner, Chaussier, Billard, Howship, Wilson, Lee, Montgomery, and others. In instances of this kind, the distended organ seems liable to give way under the great morbid dilatation of its cavity,[*] and the effusion of urine into the cavity of the abdomen consequent upon the perforation of the viscus, would appear, as in the adult, to be followed by severe and fatal peritonæal inflammation, as exemplified in the following case recently detailed by Mr King.[†]

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* Cyclopædia of Practical Medicine, Vol. iii. p. 291, and Billard, p. 483.

CASE XXII.—On opening the hydropic abdominal cavity of a fœtus of the fourth month, it was found to contain a considerable quantity of opaque viscid fluid, having numerous soft flakes of fibrinous matter floating in it. The natural gloss of the peritonæum was a good deal destroyed; and the surface was in parts slightly coated, as with fibrine. The liver was reduced in size, and had become much rounded in figure; its tunic was opaque and somewhat thickened. With this organ the bowels were collected into a bunch, in the middle of the superior part of the abdomen. The urinary bladder extended to the umbilicus, had a globular form, and was so distended as to be capable of containing above half a pint of water; its coats were decidedly thickened. A little behind its summit a perforation was found, around which the vesical tunics were very much reduced, as if by absorption from the pressure of distension. This ruptured opening of communication from the bladder into the peritonæum was a simple fissure, rather less than half an inch in length, and its margins were extremely thin. The ureters were enlarged, tortuous, and somewhat thickened. The kidneys were small, and not materially affected by the internal pressure. The urethra was imperforate from the prostate gland forwards. No very decided alteration was seen in any of the other organs.

The mother of this child, aged 27, was of a strumous appearance, and menstruated irregularly. After having been married eighteen months, she became pregnant with the above infant. She appeared to suffer from *peritonitis* at an early period of her pregnancy, and subsequently continued more or less ailing and delicate. The premature parturition was preceded by an attack closely resembling *peritonitis*. She did not suppose herself with child until the time of her delivery. The fœtus, a male, was born dead, with a full ascitic abdomen, and the abdominal parietes very considerably distended and attenuated.

In two cases that we have detailed (V., XXII.) in which there were coagula of blood in the abdominal cavity, from a partial laceration of the substance of the liver, could the peritonæal inflammation have been excited in consequence of the effused blood acting as an irritant upon the serous membrane?

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[*] In one recent case which I had an opportunity of examining along with Dr John Moir, the muscular and mucous coats of the dilated bladder seemed entirely removed at one circumscribed point, and the peritoneal tunic alone remained to prevent the effusion of urine into the abdominal cavity.

[†] Guy's Hospital Reports, No. v. p. 508.

In connection with these instances of inflammation of the peritonæum, originating in direct physical and chemical injury of the membrane itself, I may here mention, as cases in all probability referrible to a somewhat similar principle, that I have repeatedly observed an effusion of patches of coagulable lymph upon the peritonæal surface of the intestines and other abdominal viscera, in instances of monstrosity consisting in the extroversion of these viscera from a partial deficiency of the abdominal parietes; and I have seen this both in the human fœtus, and in that of the lower animals. Thus, for example, I find that among the short notes which I made some years ago, of various cases of fœtal monstrosity contained in the museum of Guy's Hospital, London, I have incidentally marked the existence of an effusion of coagulable lymph upon some part of the peritonæum, as visible in three of the cases in which there was general extroversion or hernia of the contents of the abdomen, from the deficiency alluded to. One case (2542 A) is described as having "some fibres of coagulable lymph upon the peritonæal surface of the liver and protruded intestines; the head of this fœtus is much malformed, and probably it was one of those instances in which this part adhered by inflammatory false membranes to the inner surface of the placenta or amnion. There is also a strong thread or band, probably composed of organized lymph, attached to the skin over the external side of the left elbow." The second case is marked as a "fœtus with harelip and extroverted heart and abdominal viscera, and with apparently a few patches of coagulable lymph upon the peritonæum and pericardium:" and the third case (2550 A,) a malformed fœtal pig, is mentioned as having (among many other anomalies of structure) "the extroverted abdominal viscera partially surrounded by a transparent serous-like membrane, which has strings of coagulable lymph attached to it." I have now seen in other pathological collections, several additional instances of similar partial effusions of coagulable lymph upon the peritonæum, and even intimate morbid adhesions between the contiguous serous surfaces of such abdominal viscera, as happened to be protruded in cases of fœtuses with malformations resembling the above. We may here observe also, that Scarpa, in his Treatise on Hernia, mentions and represents* a case of umbilical hernia in the human fœtus, in which a considerable portion of the jejunum adhered, (no doubt in consequence of previous peritonitis,) to the entrance of the hernial sac; and the same author, in another passage of his work, p. 378, §. 6, points out the "firm adhesion" contracted by the protruded abdominal viscera to the hernial sac, in instances of congenital umbilical hernia, as one of the causes opposing reduction and leading to the early death of almost all those infants that are born affected with this disease.

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* Treatise on Hernia, Wishart's translation, p. 377, and plate xiv. fig. 2.

SYMPTOMS OF FŒTAL PERITONITIS.

In the prefatory observations made to the present communication, I have already taken occasion to allude to the almost insuperable difficulties which are opposed to our arriving at any accurate knowledge of the symptomatology of intra-uterine diseases; and the present affection only affords too apposite an illustration of the remark in question.

In eleven only of the preceding cases have we any account whatever of the condition and feelings of the mother during the period of pregnancy. In four (I., VII., XII., XXI.,) out of these eleven cases, nothing seems to have occurred that was calculated to direct the particular attention of the mother to anything peculiar in the condition of the fœtus: in three (III., V., X.,) the cessation, about a fortnight before delivery, of the motions of the fœtus, as felt by the mother, was the only circumstance remembered, and in one of these cases (V.,) the fœtus certainly continued to live for some time after this occurrence: in another case (XI.,) the motions of the infant became less and less sensible during the last two weeks of gestation: and in the three remaining instances (II., VII., VIII.,) these motions, after being much and morbidly increased for two or three days, ceased entirely and rather suddenly, at a period varying from eleven (II.,) and fifteen (V.) days, to upwards of three weeks (VI.) before delivery. This last combination of symptoms, namely, a great but temporary increased degree of the fœtal motions, attended occasionally with spurious pains, and followed up by the sudden and final cessation of all perceptible movements on the part of the infant, may, we believe, be not unfrequently noticed in cases of acute and fatal peritonitis of the fœtus; but, at the same time, it must be held in recollection, that this same sequence of morbid phenomena is common to peritonitis with all those diseases of the fœtus in utero which are similarly acute and fatal in their character, and consequently they cannot by any means be held as diagnostic marks of peritonæal inflammation alone. We omit here, as we have done in the detail of individual cases, the recapitulation of various well-known but equivocal symptoms in the maternal system of the death of the child, such as rigors, a sense of weight in the tumour of the uterus, flattening of the abdomen, &c. because these signs, when they do occur, can only be regarded at best as probable indications of the death of the fœtus, without leading in any way to a knowledge of the cause of that event.

When the child has been born alive, but affected with congenital peritonitis, it has sometimes, in the more chronic forms of the disease, been emaciated, (XIX.) but not always so (XX.;) and, in the more acute cases, when any great degree of change is observed in the condition of the child in regard to its natural condition of fatness and plumpness, we shall in general be justified in ascribing it to other causes besides the peritoneal inflammation, as we know that this disease may even prove fatal without bringing down the state of the little patient in this respect (XIII., XIV.) In several cases the abdomen was swelled and fluctuating at birth (V., X., XI., XIII., XIV., XVIII.;) sometimes even tense and tender to the touch (XXIV.) With the abdominal effusion a certain degree of hydrocele generally exists in the *tunicæ vaginales* of male infants (as in Case VI.;) and in some there has also been observed a coexistent degree of dropsical swelling in other parts of the body, as in the hands (XI.,) in the upper extremities and face (VI.,) in particular, or in the lower extremities and beneath the skin of the whole body (XIV.)

In two of the cases the children's skin presented at birth the yellow discoloration of jaundice. In one of them that was deadborn (XIII.,) the liver on inspection was found to be the seat of acute inflammation, and commencing purulent infiltration.[*] In the second case (XXIV.,) which will be subsequently more particularly described, the child was born alive and survived.

Again, in other instances of congenital peritonitis, none of the equivocal symptoms here alluded to have been remarked, and the cause of death has only been discovered by the *post mortem* dissection (XV. XVI. XVII.)

DURATION OF FŒTAL PERITONITIS.

We have as yet but few data on which we can rely with any great degree of certainty for fixing the general duration of attacks of peritonitis in the fœtus. We have enough, however, I believe, to show that, contrary to the surmises of some pathologists, inflammatory action may occasionally proceed with nearly as great a degree of acuteness and severity in intra-uterine life as after birth. In some of the cases of peritonitis that have been related (I., II., XX.,) the plump and unemaciated condition of the fœtus after death affords very strong evidence that the fatal morbid state under which it had suffered had not been long in its duration. In others, those symptoms of increased movement and restlessness in the fœtus, which indicated the occurrence of acute disease in some part of its system, were only remarked for one (VII.,) two (VIII.,) or three (II.) days before its death; and in one of these cases (VII.) we have further corroborative evidence of the occasional very acute character of the disease in this circumstance, that the apparent exciting cause of the peritonitis was applied only two days previous to the death of the fœtus, as indicated by a sudden and total cessation in its motions subsequently to a greatly increased degree of them. In two other cases (III., XI.) also, the fœtal movements ceased in the course of a day or two after the supposed exciting cause of the fœtal disease had operated upon the maternal system. Besides, the inspection of the dead body in this and in other instances (as in I., II., VIII., IX., X., XII.) presented such morbid appearances, as corresponded only with those left by the more acute and rapidly fatal forms of peritonitis in the adult. Again, in other cases, the state of emaciation, and hence, probably, of long continued disease (XIX.) combined with the particular appearances found on dissection (XIX. to XXII.) do show in as unequivocal a manner, that in these instances the inflammatory action must have been of a decidedly chronic character.

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[*] Baumes, in his Traité del'Ictere des Enfans de Naissance, (Paris 1806,) mentions an interesting case, (p. 45,) of congenital jaundice complicated with hepatic inflammatory disease. A mother, who was herself much affected with jaundice during pregnancy, produced a child with both skin and conjunctiva sensibly discoloured. The child, whose right hypochondrium was very prominent and hard at birth, died under increased symptoms of icterus in four or five weeks afterwards. On opening its body, the tissues of the abdominal parietes and of all the abdominal viscera were seen to be stained yellow. The liver was very large, particularly the left lobe, which was morbidly adherent on its surface to some neighbouring parts, and softened in its substance. The right lobe felt indurated, and its lower or concave surface contained a small abscess. The gall-bladder was half-filled with a greenish, limpid, slightly bitter fluid. The *ductus choledochus* seemed obstructed by a viscid yellowish matter. The stomach was much contracted.

PERIODS OF FŒTAL LIFE AT WHICH PERITONITIS OCCURS.

Velpeau, in his elaborate treatise on Midwifery,[*] without specifying any particular diseased appearances, remarks in general terms, that he "had seen incontestable morbid alterations in the lungs, liver, *peritoneum*, and other parts of the body, at the *third* month." I have certainly, in several different specimens, observed unequivocal evidence of inflammation and morbid adhesions between different points of the cutaneous surface of the embryo, at a period as early, or even earlier, than that mentioned by Velpeau; and although I have adduced no case of peritonitis at that age, we shall take occasion, in our next communication, to show reasons for our belief, that we may yet be able to trace many of the malformations of the abdominal and pelvic viscera, as well as those of different other parts of the body, to different diseased actions, but particularly to inflammation occurring in some of their structures during the earlier stages of their embryonic developement and growth.

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[*] Traité Complet de l'Art des Accouchemens. Tom. i. p. 392.

In some of the instances of fœtal peritonitis brought together in the present paper, the particular age of the fœtus is not noted. Of the remaining cases, the earliest are two, (IX. and XXIII.,) in which the fœtus was considered about four months old, or between that and the fifth. In two instances (II., VII.) the child was believed to be between the sixth and seventh month; in three (III., VI., XIV.) about the seventh month; and in others again near to, (V., XVIII.) or apparently at the full time, (I., V., VIII., XI., XIII.) Most of the children who were affected, but still alive at the period of birth, (as in Cases X., XI., XVI., XVII., XXIV.,) may also be presumed to have nearly, if not fully, reached the complete term of utero-gestation, before the supervention of the disease.

EFFECTS OF PERITONITIS UPON THE LIFE OF THE FŒTUS.

If I might be allowed to draw any general conclusion from the comparatively limited opportunities which I have as yet enjoyed of investigating the diseases of the fœtus, I should certainly feel inclined to regard peritonitis as much more frequently fatal to the fœtus during the latter months of pregnancy than any other individual acute disease to which its economy is liable. I had occasion to see nine of the cases which I have related, in dispensary and hospital practice, within a period of twenty-three months. During the same period I have met with other inflammatory diseases in the fœtus, but certainly with no single one in so many individual instances. According to the observations also of Professor Chaussier and Madame Boivin, peritonitis would seem to have been not unfrequently met with by them in their dissections of the still-born children at the Hospice de la Maternité at Paris.*

In a considerable number of the cases which have been narrated in the preceding pages, the peritonitis seems to have been so acute and severe as to prove fatal to the fœtus before birth.

In eight of the cases (I., II., III., V., VI., VII., VIII., IX.,) the children had been evidently dead for some considerable time before their expulsion from the uterus, as shown by the decomposing state of their bodies. In one (XIII.) the infant, though dead-born, was thought to be alive up to the commencement of parturition. In the three first cases of chronic peritonitis the children were born alive, and survived to periods varying from eighteen (Case XIX.) and twenty-four hours (XX.,) to two days (XXI.) after birth. In several of the acute cases also, the child was born affected with the disease, and did not die till three hours (X., XIV.,) nearly a day (XII.,) or even longer (XI.) after the time of birth. In one example, indeed, recorded by Professor Desormeaux, a child born with all the most marked symptoms of congenital peritonitis, rallied completely after birth, and survived. The following are the interesting details of the case as given by Desormeaux himself.

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* “Nous avons rencontré, avec M. le Professeur Chaussier, que nous avons longtemps accompagné dans ses recherches sur les maladies du fœtus, un certain nombre de cas de péritonites, avec ou sans épanchemens, et toujours accompagnés d'adherences plus ou moins multipliées des intestins.”—Mad. Boivin, Recherches sur une des Causes de l'Avortement, p. 56. See also a note by Chaussier at p. 34-35 of his Memoire sur la Viabilite de l'Enfant Naissant. Paris, 1826.

Case XXIV.—"I had under my care, (he remarks,) some years ago, an infant whose mother's health had been excellent during the whole period of pregnancy. The infant at birth was extremely emaciated; the surface of its body was of a yellowish white colour; and it had an expression of suffering and, as it were, of old age strongly imprinted on its countenance. Further, the little patient had the abdomen swelled, hard, and tender; the intestinal convolutions could be traced under the integuments; and all announced an intense and already chronic enteritis. The infant was intrusted to a good nurse; and, notwithstanding its feebleness, it was able first to receive some drops of milk, and after a time to suck. It has since become (M. Desormeaux adds) a very fine child, and enjoys good health."[*]

From peritonitis forming so often a direct cause of death to the fœtus, the study of it, as of other fatal forms of intra-uterine disease, becomes a matter of interesting inquiry to the practical accoucheur, as bearing strongly upon the important question of the various modes in which abortion and premature labour come to be induced. And certainly the attention which has of late years been bestowed upon intra-uterine pathology has been useful in eliciting a higher degree of information on that subject; for the more our knowledge of the diseases of the fœtal economy has increased, the more have accoucheurs become convinced of the truth and practical importance of the fact, that the causes of abortion, and of the death of the fœtus during the different periods of pregnancy, are, in many instances, not to be sought for in any diseased condition of the general system of the mother, or in any morbid state of her reproductive organs, but in diseased actions originating in, and more or less strictly confined to, the fœtal appendages, or to the organs or tissues of the body of the fœtus itself. Besides, I feel much inclined to believe, that to these fœtal diseases, and more particularly to certain degrees of inflammation, and to the results or products of that morbid action in different parts of the body of the fœtus, when it happens to be of a local and limited, and consequently not of a fatal character, we may be yet able to trace the origin of various morbid states, the true nature of which is at present little suspected.

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[*] Dictionnaire de Medecine, Art. Oeuf. Tom. xv. p. 403.

In my next communication I shall endeavour to show the truth of this last remark, in as far as it relates to the effects of that individual species of inflammation which we have been here considering, namely, Peritonitis,—by adducing some additional cases and evidence to show that to the existence of this disease in the embryo and fœtus, as a pathological cause, we may yet trace the production of some varieties of malformation in the abdominal viscera, as well as the occasional occurrence of various instances of hernia, ascites, and hydrocele during intra-uterine life.

ART. VII.—*Case of Chorea Saltatoria.* By DR DANIEL KENNEDY, Dumbarton.

A. M., aged 13, was seized, June 10th 1836, with symptoms of the peculiar nervous affection distinguished by the name of the dance of St Vitus. About the commencement of the attack she was affected during two weeks with slight constipation, and occasionally complained of a dull pain in the forehead. She was said to have been a stout, healthy girl previous to the accession of the symptoms. These attacked her suddenly, and began with the sensation of an *aura* or breathing air proceeding from the toes upwards, until it terminated in the abdomen. Hiccuping once, twice, thrice, was instantly excited, and was invariably followed by a tremulous motion of the head and neck from right to left. This motion was an uniform and never-failing precursor of one of the convulsive paroxysms which characterized the presence of the disorder.

The posture of the body during this preliminary stage was prone, and is aptly expressed by what is called the "squatting posture," the forepart of the thighs being drawn up towards the abdomen, and the forehead reclining on the posterior aspect of the right forearm, which was clasped at the wrist by the left hand.

Having remained for sometime in this posture, quite insensible to all external agencies, and even to loud bawling, rude handling, and frequent smart pinchings, she tossed her body to and fro in all directions; twisted it slowly round and round upon her head; frequently stood upon her head, and revolved upon it as upon a centre, her feet elevated and leaning against the wall. At this period, her face was much swollen, flushed, and expressive of extreme agony; her respiration retained for a minute, then issued forth in painful and interrupted hissings. At one time, she was bent strongly backwards, and then the flexors of the leg were thrown into violent action, which made the heels press on the ischiatic protuberances. At another time, she stooped almost prone, and drummed the pillow of her bed with surprising celerity. She then bounced upon her knees; danced rapidly and convulsively upon them, at the same time tossing her arms aloof as if enraged. In fact her whole deportment was sometimes descriptive of great anger, sometimes of disappointment, and a kind of demoniac despair. She frequently (thrice during a fit) whirled round and round upon her knees, so as to resemble the rotary motion of a tub, circling in the eddies of a whirlpool. She then seized the sideboard of her bed with both hands, and endeavoured to wrench it from its connections; failing, however, in this, she stooped cautiously, and gnawed it, like a rat, with her teeth. At this stage, she often crawled out of bed, and finished her various performances on the floor. She always twice (often thrice) climbed up the wall of her bed, and having held fast for a moment or two, suddenly dropped into the centre of it, when, after a short pause, she actively recommenced the performance of the scene just described, Three rounds of the above constituted a fit.

Such is a short, though pretty full, account of the phenomena of this strange affection. Perhaps I may add, that, at the commencement, she was wont to sing during a paroxysm; and evinced during the three first months of the disease other slight peculiarities; such as striking her head somewhat severely against the wall of the bed, &c. Her posture when emerging from the fit was the same in which she entered it, with the exception of the following curious and regular concomitant, viz. she tapped gently once, twice, thrice, upon her pillow, and ere the bystander was aware, made in a low, but easy and familiar tone, the words "Ye're no gude." Immediately after, she rose and reclined at her ease, as if nothing had occurred. She always expressed surprise at the disordered state of her bed; and seemed totally unconscious of the recent occurrence. When told the circumstances of her case, and made acquainted with the strange acts she had just performed, she smiled at the narration, denied the facts, and could not be persuaded of her real condition. The daily number of fits were fourteen often fifteen. They commenced almost regularly at 8 o'clock A. M. and recurred more or less frequently till 11 or 12 o'clock P. M. None during sleep. The duration of a fit at first varied from twenty minutes to half an hour, but latterly from an hour to an hour and a half, and occasionally very nearly two hours.

During the three first months of the disease she was attended by two medical gentlemen, and was by them copiously purged, and subsequently underwent a course of tonics and antispasmodics, without the smallest change. In the fourth month of the disease her friends consulted me concerning it; and, after having participated in the general astonishment, I consulted with another medical gentlemen of my acquaintance as to what was best to be done. We, after previous purging, gave two drachms of carbonate of iron, four times daily, mixed with one scruple of powdered rhubarb and ginger, and continued its administration for about three weeks, but without any beneficial result.

My medical companion, disappointed at the unsuccessfulness of this attempt, relinquished the patient. Accordingly I was left at liberty to make a few therapeutical experiments on this obstinate disease. I thought it quite unnecessary to repeat any of the methods of cure which she had already undergone; I therefore first tried the effect of the cold affusion, by throwing two large pailfuls of cold water upon her almost naked body, while in the fit. The first made her start up, and draw in a sudden inspiration. Upon a repetition of the above, even this effect was not induced. On coming out of the fit she was perfectly unconscious of the above circumstance. I then tried a solution of the tartrate of antimony in moderate doses, so as to excite and maintain nausea, and persevered in its application until she vomited copiously, and became very sick.

The effect of the antimony delayed for a time the recurrence of the fits, and appeared to shorten their duration.

This was all the effect on the disease itself by means of the antimony. I thought, however, it would have diminished the frequency of the pulse, which was always above 100, generally 120, and which, I know, continues still the same; but its only effect was a sensible diminution of its strength, rendering it very small and feeble.

I now ventured an attempt with hydrocyanic acid, taking all the care and precautions necessary in the trial of so dangerous and powerful a remedy. I began at first with a dose of five drops. This having no effect, I next gave ten drops. It sickened her a little; her cheeks and lips growing pale, and her eyelids rapidly winking. I now gave twenty drops, the effect of which was similar to the previous dose, but which made her breathe very short and irregularly, and if spoken to she would not answer, except when I bawled loudly in her ear, when she replied in a low and tremulous whisper, so faint as scarcely to be understood. From this lowest state of consciousness she always recovered in less than an hour. Next day she took thirty drops of prussic acid in the forenoon, when she fell asleep with imperceptible breathing, out of which she awoke in two hours, and appeared quite well. In the afternoon I administered forty-five drops five minutes before a fit. In less than three minutes she had all the above symptoms in an aggravated degree, and soon dropped into a state of apparent lifelessness, and, though I pinched and spoke to her, she lay quite motionless.

I confess I was so apprehensive of the result, that I went away, and expected the first news I should hear would be, that I had poisoned her. In about two hours, however, I ventured to call again, and was surprised to find her sitting cheerfully in bed, and was informed, that soon after I had departed she vomited excessively. The fits were certainly longer of returning, and their violence considerably abated by this treatment; although the usual number daily was uniformly completed. Upon leaving her I ordered her sister to give sixty drops of hydrocyanic acid in half a cupful of cold water, a little before 8 o'clock in the morning, the hour when the fits always began. Having called next day in the afternoon, I learned that the last dose was far less powerful than the previous one, although a strange effect followed its administration, for until 3 o'clock afternoon the patient was seized with only one trivial fit. I now began to think I had made some impression on the disease, which was further confirmed by a visit at 10 o'clock at night, when her father and sister, with many others, joyously informed me that, with the exception of the fit noticed above, the patient had not been seized with one fit during the whole day, and that in reality I had cured her. I began to think so myself, and flattered myself that success had at length crowned my endeavours. This expectation was not, in the meantime, realized; for on calling next day I found, to my astonishment, that during the night the symptoms had returned with unwonted vigour and perseverance; in fine, that after 12 o'clock at night the patient had completed her daily number of fits, with hardly any interval.

I now began, like my predecessors in this case, to despair of effecting any change on so obstinate a disease; and accordingly allowed a week to elapse without doing any thing, except keeping the bowels open daily with colocynth pills. After this I applied a blister over the cervical portion of the spine, and rubbed antimonial ointment (two drachms to one ounce) along the spinal column. About this time, Dr Burns, the Professor of Surgery in the University of Glasgow, happened to pass, on a visit, through Dumbarton; and I expected to have his opinion of the case. Accordingly on his return, Messrs Buchanan, Richard, and I waited on him at the inn where he changed horses; and having informed him of the nature of the case, he very civilly consented to accompany us to the patient. Most unfortunately, however, on our arrival, she happened to be in an interval of the fits, and Dr Burns, being in haste to return to Glasgow, had to retire without witnessing the singular operation of the disease, and consequently gave no opinion concerning it. The blister and ointment having had no beneficial effect, I omitted visiting her during three weeks; at the end of which I again determined to apply a blister over the sacrum, having remarked, in the course of my reading, that this method had proved successful in certain cases of chorea, by inducing the menstrual discharge. It was with great difficulty, however, that I could now persuade the father to accede to this new proposal; for he now firmly believed that art could be of no avail in her case. Having gained her own consent, and represented to the father the harmlessness of the remedy, and the danger of delay, he at length despondingly acceded. The blister was applied pretty extensively over the sacrum, along with one about the size of a dollar over the nape of the neck, and both were directed to be kept open with savine ointment. Four days after the application, the fits entirely left her, and on the sixth the menstrual flux appeared. I now expected she would be able to walk about in a month by the aid of tonics and proper diet, but these seemed to produce no salutary effect.

In fact, she began to get worse in health daily after the discontinuance of the fits, and I began to despair of a complete recovery, more especially, as, from a number of stethoscopic examinations made by another gentleman and myself, we dreaded some disease of the heart; the pulse small, and always above 100. She had, ever and anon, frequent faintings, generally of fifteen minutes duration. I tried alternately quinine and muriated tincture of iron for nearly a month; but at length finding no benefit from them, and as she began to vomit almost daily, I dropped giving any medicines at all. Shortly after the vomiting became incessant, despite of opium, effervescing draughts, and all that could be devised; so much so, that the minutest portion of food was no sooner swallowed than rejected. She vomited above a score of times daily, and continued constantly in this state for a period of two months, apparently growing weaker every day; so that no one entertained the slightest hopes or most distant prospect of recovery. About three weeks after I had thus abandoned her to her fate, her sister came to tell me that she had got up out of bed that same day, saying, " I think I can walk now," and had no sooner said the word than she performed the deed; walking to and fro to the utter astonishment of all who saw her. It is remarkable that, up to this very moment, the vomiting continued unrestrained, in all its frequency and vigour. Every thing she took, solid as well as liquid, for the space of two months, was invariably, and in less than five minutes, discharged by vomiting. I may also mention (what might almost be expected) that, at this period, she had a small stool only once in the fortnight.

Such is the history of this very strange case; and, in conclusion, I may inform you that the girl herself has been in my shop several times since, her cheeks blooming with the glow of high health, her mind cheerful, and her constitution sound in every respect, with the exception of a slight halt in the left leg, which I hope will soon disappear by means of a little exercise.

P. S.—I am happy to say that the halt has been entirely got rid of, by frictions frequently repeated; but I may notice, now that she is well, that the pulse is still, as during the presence of the disease, above 100, although much stronger.

Art. VIII.—*Case of extensive detachment of the Skin.* By the late James Weir, M. D., Member of the Medico-Chirurgical Society of Edinburgh.

C. Cowans, aged 11, a stout, healthy, and active girl. On the forenoon of October 4, 1825, while handing sheaves of barley to her father, who was feeding a thrashing-mill newly put up, she inadvertently approached so near to the machinery, which was still uncovered, that her hair, which was coiled up behind, was caught by the teeth of the pinions which turned the rollers and dragged inwards. Before she could be rescued from her perilous situation, the integuments had been extensively detached from the upper part of the head and posterior part of the neck. The skin had burst over the superciliary ridges, stripping off the cilium of the left eye, detaching almost the whole of the cartilage of the left ear, leaving it hanging by its lobe, and exposing the muscles covering the angle of the jaw; on the right side it had given way immediately above the cilium, and was detached downwards, forming a curve around the right ear, leaving it almost insulated. The separation of the skin proceeded downwards, denuded all the posterior part of the neck, exposed part of the muscles of the left scapula, and reached to the edge of the right; below this it became more narrow, assuming the shape of the *trapexii* muscles, and when the father, by an Herculean exertion of strength, had stopt the machinery by laying hold of the spur wheel, it had extended nearly to the last dorsal vertebra. By turning back the machinery the detached scalp and skin were unravelled, and were scarcely lacerated from the manner in which the rollers were constructed to take in the sheaves, except a small part where the scalp was first laid hold of. As they proceeded to convey her to the house, the father, seeing the detached skin trailing behind, took out his knife, and unfortunately cut it off as far down as the last cervical vertebra.

Being from home when the messenger despatched to request my presence arrived, my assistant, Mr J. Marshall, set off with all possible speed, and found matters in the state above described. Two hours might intervene between the time of the occurrence of the accident and the arrival of my assistant, the distance being six miles. On the cause of the deficiency of the integuments being explained to Mr Marshall, though the hopes of procuring any adhesion with the portion removed, and the parts from which it had been stripped, were certainly very improbable, yet, as no harm could accrue from the attempt, he cleared it of the hair and beards of barley, and carefully secured it in its place by stitches and adhesive plaster.

I saw her next day, and found her pulse about 120, and feeble, though, from the nature of the accident, she had lost but a very few ounces of blood. Skin nearly of the natural temperature. Some wine was directed to be given.

8th. On removing the dressings, we perceived that not only that portion of the skin which had been detached by the knife, but also three or four inches of the upper part of that which had been left adherent, had lost their vitality, and resembled a slough about to be thrown off. The exposed surface was dressed with simple ointment, and the wine was continued along with a farinaceous diet.

10th. The greater part of the remaining dead skin was washed off, and healthy granulations had appeared on the cranial surface. The pulse was still feeble and frequent. She complained very little of pain. The wine was continued.

12th. I was much disappointed upon removing the dressings to observe that the granulations had disappeared. Her pulse could scarcely be counted, and was very feeble. The wine was increased. A cupful of beef-tea daily was ordered.

14th. Some slight appearance of the return of the granulations upon cranial surface. The pulse was firmer, still very feeble. The wine and beef-tea were continued.

16th. Granulations numerous on the cranial surface, though scarcely apparent on the other parts of the sore. The discharge of purulent matter was pretty copious. No appearance of union betwixt that portion of the skin which still retained its vitality and the subjacent surface.

18th. Granulations had again disappeared, and the discharge of purulent matter was diminished. Pulse again more feeble, and she was altogether worse. The left external ear still un-united. Six ounces of wine, and a pound of beef-tea daily were ordered to be given.

20th. Granulations beginning to show themselves on the cranial surface. The pulse was stronger and less frequent.

22d. Granulations more apparent upon cranial surface, and also beginning to present themselves on the other parts of the sore. Pulse improving in strength.

25th. Appearance of sore continuing to improve. Severe inflammation of left eye.

From this time she progressively gained strength, and the surface of the sore retained its healthy appearance. The left external ear, which had been frequently replaced, was neglected in my absence for a few days, and was found adhering to the neck, where it was allowed to remain. She soon became able to sit up in bed, reclining her head on her knees. New skin began to shoot from the edges of the old. The palpebræ of the left eye were drawn towards the ear, and the opening between them extended to nearly three inches in length, leaving the eye permanently exposed. The constant inflammation of the eye which this produced, terminated at last in staphyloma. Two months after the accident her strength was so much improved that she began to employ herself in sewing.

During the following summer she was able to go out to the open air when the weather was favourable. That portion of the skin which retained its vitality had now occupied its former place, but the new skin extended very tardily from the edges of the old, more particularly on the cranial surface. No insulated portions of skin ever appeared on the surface of the sore.

About three years and three months from the time of the accident she became affected with gangrene of the left foot, apparently from neglected chilblains. The gangrene continued to extend towards the trunk, and she died in the course of ten days. By the approximation of the old and the production of new integuments, the neck was skinned over as high as the third cervical vertebra, but the granulations on the upper part of the neck, the occiput, the *ossa parietalia*, and part of the squamous portions of the temporal bones, still remained uncovered at her death. She had grown taller, but never recovered her former plumpness.

This case illustrates several facts of considerable importance, which, however, are well known in surgical practice; such as the depressing effects of extensive injuries upon the heart's action, independent of any loss of blood; the necessity of a certain degree of vigour in the constitution to carry on the reparative process; and the greater rapidity with which granulations spring up on the cranial surface than upon other parts of the body less abundantly supplied with blood-vessels. It also affords an excellent illustration of the tardiness with which cicatrization proceeds, when the injury is of such a nature, as to prevent the approximation of the cut edges of the old skin.

Bathgate, August 15th 1837.

PART II.

CRITICAL ANALYSIS.

Art. I.—*Statistical Report on the Sickness, Mortality, and Invaliding among the Troops in the West Indies, prepared from the Records of the Army Medical Department and War Office Returns.* Presented to both Houses of Parliament by Command of her Majesty. London, 1838. Folio, Pp. iv. 103, and Appendix, pp. 40.

In the year 1816, Sir James M'Grigor, the Director-General of the Army Medical Board, established among the medical officers of the British Army stationed in the different parts of the British dominions, in the various quarters of the globe, the practice of rendering periodical returns and reports on the state of the health and efficiency of the troops under their charge; and as the Director-General had also requested the different medical officers, to give, regarding the soil, climate, natural history, and endemial disorders of the countries in which they were stationed, as much accurate information as their opportunities and qualifications enabled them to procure, a large proportion of important materials illustrative of the medical history of the Colonies was in no long time collected. In the course of twenty years the documents thus formed had accumulated so as to occupy more than 160 folio volumes; and though they had always been accessible to scientific and professional inquirers, the difficulty of consulting them and extracting information from them in this shape was so great, as to indicate urgently the necessity of digesting their most essential materials, in such a form as might render them available to medical inquirers in general, and beneficial to the advancement of medical science.

In undertaking a task of this description there was one great principle that seemed more particularly to deserve attention. As the official returns necessarily related to large masses and numbers of men, all placed more or less exactly in circumstances, which were either the same, or at least admitted of some degree of comparison, it seemed most natural to apply to them the general principles of statistics. It seemed that the most proper mode of applying them usefully, was to consider the prevalence of sickliness and the degree of mortality as it was presented by bodies of men more or less numerous, and extended over a series of years more or less lengthened, and inquire whether, in this manner, it were not possible to discover, whether the sickliness and mortality of the different races of mankind were not regulated by general laws.

It was manifest that if all the facts relating to the prevalence of disease, the kinds of disease, the seasons at which sickliness was most general and most fatal, the number of deaths taking place, the ages at which deaths took place, and the kinds of disease by which the mortality was caused, were arranged in tabular forms; such tables were more likely than any other form to furnish accurate results regarding many points, on which vague and inaccurate statements only had hitherto been made. It became requisite, therefore, that the documents thus collected should be carefully examined by persons thoroughly conversant with this method of investigation; and as no one had devoted so much attention to it, and had applied it with so much ability to the elucidation of various questions relating to military medicine and hygiene as Mr Henry Marshall, Deputy Inspector-General of Hospitals, that gentleman and Captain Alexander Tulloch, who had also distinguished himself by the publication of various essays on the same subject, were appointed to the duty by the Secretary at War, on the recommendation of the Director-General. The propriety of this selection it is impossible to doubt, especially when we consider the peculiar difficulties of the task, the persevering diligence and industry required to overcome them, and familiarity with the mode of inquiry, as well as the several sources of error to which it is exposed.

The documents which these gentlemen were desired to employ as the basis of their report, consisted of a series of returns rendered annually by every medical officer having the charge of troops on foreign stations, to the principal medical officer of the Colonial government in which he serves, specifying the number of troops under his charge, the admissions into hospital and deaths in the course of the year, and stating the different diseases by which they were occasioned. The contents of these individual reports are condensed by the principal medical officer into one general return, presenting the sanatory history of the whole troops in the colony, which is transmitted to the Medical Department, where it forms a record of the state of their health for that year.

The annual medical returns now mentioned, afford accurate information only regarding the admissions into hospital, the attacks of sickness, and the deaths thereby occasioned. Of deaths taking place without admission into the military hospitals, or occurring so suddenly that the individual could not be reported to the medical officer on duty, or was not placed on the hospital diet roll, they do not afford information. This defect, however, was supplied, by consulting the returns forwarded monthly to the War Office, which state the full strength of the respective corps, and also the deaths and casualties occurring from month to month; and from the same documents information was obtained regarding the ages of the soldiers, and the length of service endured by each.

The report formed in the manner, and from the sources now specified, is confined altogether to the sickness, mortality, and invaliding of the European and coloured troops employed by the British government in the West Indies; and in treating of these subjects the authors have distinguished them into four commands; A. The Windward and Leeward; B. The Jamaica Command; C. The Bahamas; and D. The Honduras Command.

I. *Sickness and Mortality in the West Indies.*

A. *The Windward and Leeward Command.* The troops serving in this command are employed in garrisoning various islands and possessions lying between 6° and 17° N. Latitude, and 56° and 63° West Longitude, and including that portion of the South American continent termed British Guiana, with the islands of Trinidad, Tobago, Grenada, St Vincents, Barbadoes, St Lucia, Dominica, Antigua and Monserrat, and St Christopher's, with Nevis and Tortola.

Though these islands form part of the chain which stretches across the gulf separating North and South America, and, therefore, agree in the general circumstance of high solar temperature, the alternation of dry seasons and copious tropical rains, and the cooling influence of the trade winds, yet many of them differ so much in the nature of their surface, and other physical peculiarities capable of influencing the health of residents, that it is difficult to include all of them in the same general category in this respect. It is observed, for instance, that Trinidad, Tobago, St Lucia, and Dominica, abound in mountainous elevations, covered with dense forests and intersected by deep ravines, impervious to the breeze, and in which the rain water, finding no outlet, stagnates among a mass of decayed vegetable matter, creating a moist soil, with a damp climate and variable temperature; while Antigua and Barbadoes, on the other hand, are comparatively low and rocky, with scanty soil, little exuberant vegetation, a dry climate and uniform temperature. The other islands possess a character in these respects intermediate. Lastly, the coast of British Guiana, which is an immense tract of flat alluvial land, elevated only a few feet above the level of the sea, and covered with wood, presents during the rainy season an almost endless succession of swamps and marshes, where the atmosphere is loaded with moisture and the temperature is high, though not very variable.

The average temperature of these regions is from 79 to 80½ and 82°.

From a table of the strength, admissions, and deaths among the troops during the twenty years from 1816 to 1836, it appears that the average strength amounts to 4.333, that the admissions into hospital among this body amounted at an average to 8247 annually, or, in other words, to 1903 per 1000, that is, that every man must have been under medical treatment for some cause or other about once every six months and a half, and that the deaths were on an annual average 340, or 78.5 per 1000. As the medical returns, however, do not give all the deaths, and show, when compared with the War-Office returns for the same space, a deficiency of 266 in the total number, or an annual average of 13.3. This, added to the previous number 78.5, raises the annual mortality per 1000 to 81.8 ; and if to this number be added the deaths of invalids at sea, or on their passage homeward, which are estimated at 14 annually, or 3½ per 1000, it raises the annual mortality to 85 per 1000 of the mean strength.

It will afterwards appear that the annual mortality taking place in the same class of troops serving in various parts of Great Britain, amounts, during a long series of years, to 15 per 1000, and that even during the last seven years, when two epidemics, cholera and influenza, tended greatly to elevate this rate, they did not add more than 2 per 1000, so that the mortality at the very highest does not, in this class of troops in this country, rise above 17 per 1000. It appears, therefore, from the facts now stated, and the calculations founded on them, that residence of European troops in any of the stations of the Windward and Leeward Command, has the uniform effect of raising the mortality among them from 17 to 85 per 1000, or making it exactly five times greater than it is in this country.* As the strength, however, was over-stated in the medical returns, the rectification of this error raises the mortality to 93½ per 1000.

Even this high rate of mortality, however, in these tropical stations, appears to be by no means the highest known to occur in that Command. The present report contains a tabular view of the strengths and deaths for a space of fourteen years, from 1803 to 1816 inclusive, from which it appears that, among a body of troops, amounting at an annual average to 6.767, the annual average number of deaths was 931, or 138 per 1000. It appears, therefore, that, since 1816, the average mortality has fallen from 138 to 93½ per 1000. This amelioration is represented to have taken place chiefly in the islands of Barbadoes, Trinidad, and Antigua.

The general mortality among European troops being thus determined at this command, it comes to be inquired by what diseases chiefly is the mortality occasioned ?

The diseases which prevail most in this command, are 1. The different forms of fevers ; 2. Disorders of the alimentary canal ; 3. Abscesses and ulcers; 4. Wounds and injuries ; 5. Diseases of the lungs; 6. Diseases of the eyes; 7. Rheumatic disorders; 8. Venereal disorders; 9. Disorders of the brain; and 10. Disorders of the liver in the order now specified, as to numerical frequency.

The comparative prevalence of each class and order will be most easily understood from the following tabular statements which are given in the Report.

Fevers.

	Admitted.	Died.	Proportion of Deaths to Admissions.
Quotidian Intermittent Fevers,*	24,607	149	1 in 165
Tertian, ...	1,973	11	1 in 179
Quartan, ...	133	1	1 in 133
Remittent, ...	17,799	1,966	1 in 9
Common, continued, . .	16,821	726	1 in 23
Yellow Fever, (*Icterodes*,) .	774	331	1 in 2⅓
Typhus, ...	48	11	1 in 4⅓
Synochus, ...	8		0 in 8
Total,	62,163	3,195	1 in 20
Annual ratio per 1000 of mean strength, . . .	717	36.9	

This table shows at once that fevers are the principal source of sickness and mortality in the stations under this command; and that large mortality is chiefly occasioned by remittent fever and yellow fever.

It may be observed with regard to the last, that a distinction which, if not arbitrary, is at least not very rational, prevails in the kind of cases referable to that head. It appears that, in the course of twenty years, the number of 17,799 cases of remittent fever took place, causing 1966 deaths, or at the rate of 1 in 9. Under the head of yellow fever, we find 774 cases, of which 331, or 1 in 2⅓, terminated fatally. Though every medical officer is fully entitled to fix in his own practice the characters which constitute yellow fever, and those which constitute remittent fever; yet, when it is well known that cases of remittent fever present at the commencement symptoms, which are in all leading characters similar to those of yellow fever, and that the fevers which thus commence are called yellow fever only when yellowness of the surface and black vomiting come on, it can scarcely be denied that the difference is one not in kind but in degree. It is further clear, from the very high mortality assigned to the cases of yellow fever, viz. 427 per 1000, or nearly 43 per cent. that only the most exquisite and virulent cases have been referred to this head; and it is not improbable that, under other circumstances, the cases of remittent and of yellow fever would have been all arranged under one and the same head as endemial fever.

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* "A considerable proportion of the fevers classed as quotidian may probably have been tertian or quartan, as the returns are not always very specific on this head."

The order of diseases next in the degree of prevalence is that of the disorders of the alimentary canal. The relative frequency of these disorders is presented by the following table:

Diseases of the Stomach and Bowels.

	Admitted.	Died.	Proportion of Deaths to Admissions.
Abdominal Inflammation, -	25	7	1 in 3½
Inflammation of the Stomach,	161	26	1 in 6
Bowels, -	254	38	1 in 7
Vomiting of Blood, - -	34	2	1 in 17
Acute Dysentery, - -	14,076	608	1 in 23
Chronic „ - - -	3,767	759	1 in 5
Indigestion, - - -	1,142	27	1 in 42
Colic, - - - -	3,286	15	1 in 219
Obstipation, - -	727	3	1 in 242
Cholera, - - -	1,173	24	1 in 49
Diarrhœa, - -	11,828	285	1 in 42
Cancer of Stomach, - -	1	1	1 in 1
Total, - -	36,474	1,795	1 in 20½
Annual ratio per 1000 of mean strength, - -	421	20.7	

That this order of diseases is a most fertile source of sickness and mortality among the white troops is proved by the following facts. The proportion attacked is 421 per 1000, or little short of one-half of the strength; and the mortality caused is nearly 21 per 1000; whereas in this country the proportion attacked by disorders of the same family is only 95 per 1000 of the strength, and not more than 1 death takes place in 2000 of the strength.

The chief source of this mortality is acute and chronic dysentery, or diarrhœa passing into the latter. In the acute form the disease is fatal in 1 among 23 cases only, and in diarrhœa the mortality is 1 only in 42. But though the mortality in this stage of the disease is moderate, the disorder itself by recurrence has a strong and almost irresistible tendency to become chronic; and in this state, after each recurrence, it always assumes a more unmanageable character, and at length undermines the health and strength of the patient, and destroys him.

It is most likely that this unfavourable result is effected chiefly by the acute inflammation of the intestinal mucous membrane having proceeded to ulceration, when it never fails to destroy the patient.

It appears also that inflammation of the stomach and bowels, though not very prevalent, constitutes a large proportion of fatal cases, the mortality being in the former tribe 1 in 6, and in the latter 1 in 7. The table, in general, demonstrates the extremely fatal character of gastric and intestinal disorders within the tropics.

Passing over the large list of abscesses and ulcers, (17,708,) and wounds and injuries, (11,149,) the next order in frequency is that of the diseases of the lungs, which are represented in the following table.

Diseases of the Lungs.

	Admitted.	Died.	Proportion of Deaths to Admissions.
Inflammation of the lungs, -	1,941	112	1 in 17
Pleurisy, - - - -	34	1	1 in 34
Spitting of Blood, - - -	303	34	1 in 9
Consumption, - - -	1,023	580	1 in 2
Acute Catarrh, - - -	5,108	49	1 in 104
Chronic Catarrh, - -	1,409	127	1 in 11
Asthma, - - - - - -	92	2	1 in 46
Difficulty of Breathing, - -	63	1	1 in 63
Hooping Cough, - - -	2		
Total, - -	9,975	906	1 in 11
Annual ratio per 1000 of mean strength, - - -	115	10.4	

This table affords various instructive lessons regarding the etiology and the therapeutics of pulmonary disorders.

It appears, in the first place, that the proportion of admissions for this order of diseases is, in the Windward and Leeward command, 115 per 1000, and that the mortality is 10.4, or nearly 10½ per 1000. In this country the proportion of admissions among the same class of troops is 148 per 1000, whereas the mortality is not more than 8½ per 1000. This shows that, though diseases of the lungs are more prevalent in Great Britain, they are less fatal than in the West Indies.

It is further a remarkable fact, clearly proved by this table, that consumption is more prevalent in the islands of the Windward and Leeward command than in Great Britain. Of an aggregate strength of 86,661 serving in this command, not fewer than 1023 were attacked by that disease, being 12 per 1000 annually; whereas of an aggregate strength of 44,611 dragoon guards and dragoons serving in Great Britain, only 286 were attacked, being 5½ per 1000 annually. This inference, established on the solid and extensive basis of numerical observation, comprehending large bodies of men, and extended over a considerable number of years, shows how erroneous are the views that have been hitherto taught on the influence of warm climates on this disorder. It must be admitted as an established principle in pathology, and in the etiology and therapeutics of consumptive disorders, that the influence of hot or tropical climates is positively pernicious, and that phthisical patients sent to these regions are more likely to be accelerated to the fatal termination of their complaint, than in such climates as Great Britain.

These facts are, we believe, closely if not necessarily connected with others; especially that which shows that inflammation of the lungs and chronic catarrh are nearly twice as prevalent and twice as fatal in these islands as in Great Britain. The influence of high temperature upon these disorders appears to be either naught, or positively pernicious; and when we consider, how often consumption either is or appears to be the effect of pneumonia or *bronchitis*, and how uniformly it is accompanied with these disorders, it cannot be matter of wonder that such a climate is injurious to invalids afflicted with pulmonary disorders generally, and to consumptive patients in particular. Ever since the years 1823 and 1824, acute catarrh, which was wont to be rare, has become very prevalent.

Diseases of the brain and its membranes, which have always been allowed to be common and fatal within the tropics, occupy the next place in point of prevalence. It appears, however, that even in regard to these disorders some vulgar errors require to be rectified. This will appear by glancing at the following table.

Diseases of the Brain.

	Admitted.	Died.	Proportion of Deaths to Admissions.
Inflammation of the Brain, -	108	8	1 in 13½
Headach, - - -	127	1	1 in 127
Stroke of the Sun, - -	6	0	0 in 6
Water in the Head, - -	3	2	1 in 1½
Apoplexy, - - -	159	83	1 in 2
Paralysis, - - -	106	10	1 in 10½
Epilepsy, - - -	325	22	1 in 15
Fatuity, - - -	83	5	1 in 16½
Madness, - - -	104	6	1 in 17⅓
Brain Fever of Drunkards, -	1,426	175	1 in 8
Total, -	2,447	312	1 in 8
Annual ratio per 1000 of mean strength, - -	28	3.7	

The first circumstance deserving attention in this table is the small proportion of attacks and the still smaller proportion of mortality, the former being only 28 per 1000, and the latter only 3.7 per 1000 annually. The next circumstance is the small proportion of cases of *Coup de Soleil* or Sun-Stroke, (*Siriasis*,) or meningeal congestion and inflammation, from the direct impression of the solar heat. This affection, which has been generally represented to be very frequent within the tropics, took place only in 6 cases among 86,661 persons; and in no case with fatal result. *Thirdly*, Apoplexy, palsy, and epilepsy are pretty frequent; and the first is by far the most fatal, the deaths being 1 in 2; and it is most likely, that the half not immediately fatal, forms a considerable proportion of the cases of palsy. It would indeed have been desirable, that, upon the subject of the number of cases of palsy which were the consequences of apoplectic seizures, exact information had been communicated. The fourth circumstance in this tabular statement which merits attention in an etiological point of view, is the large proportion and the great mortality of cases of methystic delirium or the brain-fever of drunkards; this tribe of disorders forming considerably more than one-half of the whole number of diseases of the brain, and the mortality being 1 in 8. An idea may be formed of the prevalence of this evil, when it is mentioned that the proportion of cases in the whole aggregate strength of 88,661 is 16 per 1000, with two deaths in each of these 16; and when it is considered how many of these cases, not proceeding to the fatal event, most probably terminated in apoplexy, palsy, fatuity, and madness, it must be allowed that this single cause is more efficient by a great deal than mere elevated temperature alone, in inducing the various disorders of the brain and its membranes.

The stations at which this disorder is most prevalent are, British Guiana, (37 cases in 17,689;) Trinidad, (15 cases in 6,197;) Grenada, (17 cases in 6,267;) Barbadoes, (40 cases in 23,936;) St Lucia, (13 cases in 4,814;) and Dominica, (23 in 4,723.) It is also important to remark, that in British Guiana, Trinidad, Tobago, Grenada, St Vincent's and St Lucia, more than half the deaths depending on disease of the brain and its investments has been the result of methystic brain-fever, (p. 16;) in Barbadoes, exactly one-half has been the result of this disorder; and in Dominica, of 25 deaths caused by cerebro-meningeal disorder, 23 were the result of methystic brain-fever.

The statistical history of the same disease among the black troops teaches a lesson not very flattering to the pride of the European. During the same period of twenty years, from 1816 to 1836, there was maintained in the same Command a force of 40,934 black troops; and among the whole of this force there occurred only 57 cases of the brain-fever of drunkards, of whom 9 died, or 1 in 6⅓. This prevalence was at the rate of only 13 cases in 10,000 men,—a very remarkable difference from the prevalence of the distemper among the white soldiers. A natural question is here suggested, whether this diminished prevalence of a disease, the direct effect of intemperance, is to be ascribed to the greater moderation of the black troops, their greater difficulty in procuring intoxicating liquor, or the greater resisting powers of their nervous system? Meanwhile it may be observed, that the returns do not afford any countenance to the latter supposition, so far as the tribe of cerebral and meningeal disorders among the coloured troops is concerned. It appears to us, therefore, that at present there is no other alternative, than to impute this greater immunity among the black troops to their greater temperance in the use of these pernicious stimulants.

Can any one after this speak of the superior moral and intellectual qualifications of the European or the Caucasan race over the Negro? Can any one, with any show of reason, tell us of the right that the former has to rule the latter by virtue of the colour of his skin, or any other part of his physical organization? Plutarch informs us, that the Spartans were in the habit of allowing the Helots to become intoxicated, and exhibiting them in this state to their fellow-citizens and children, in order that they might more fully impress upon their minds, what a ridiculous, contemptible, and abject animal, a drunken human being is. This the modern Europeans, civilized by the light of Christianity, would not do. They act a less selfish and more liberal part. They agree to swallow intoxicating liquors to such an extent as to deprive themselves for a time of the power of reason, and the faculty of distinguishing right and wrong; and 16 in every 1000 of these educated persons voluntarily put themselves in a state of temporary madness;—two, with the certainty of being killed outright; and the other 14, with the probability of falling into apoplexy, palsy, or becoming mad or idiotical for life. It is still left in a state of happy obscurity, whether this voluntary brutalization of the human faculties is undertaken for the purpose of showing their countrymen what an abject and contemptible creature an intoxicated human being is, while the coloured population are spared the pain of performing this task, or of proving the fitness of the white to rule over the negro.

It is scarcely to be admitted as an extenuation of the pernicious principle involved in this abuse, that the system of taking a certain quantity of spirituous liquors was at one period of the space now referred to sanctioned by the public authorities, military and civil. It indicates no high capacity either for legislation or government, that a practice, which led in its abuse to such a waste of human life, and became the inexhaustible source of many diseases, and not a few crimes, received the sanction of official authority. We know not whether a better era is now on the approach. But this we assert, that, if active steps be not now taken to arrest the progress of this pernicious practice, the official persons who have the charge of the military in these colonies are daily incurring the charge of blood-guiltiness.

On the prevalence of diseases of the liver, the next on the list, we shall merely subjoin the following tabular statement.

Diseases of the Liver.

	Admitted.	Died.	Proportion of Deaths to Admissions.
Acute Inflammation of the Liver,	903	79	1 in 11
Chronic, - - - - -	902	76	1 in 12
Jaundice, - - - - -	141	6	1 in 23
Total, - -	1,946	161	1 in 12
Annual ratio per 1000 of mean strength, - -	22	1.8	

On this table we have nothing to remark, except to repeat what is stated in the report before us, that this order of diseases is by no means so prevalent as in the East Indies; and that it varies at different stations and perhaps in different seasons. It was long ago observed by Dr Colin Chisholm, that diseases of the liver were extremely prevalent and fatal in Grenada. This observation is corroborated by the authors of the present report, who, however, avow their inability to assign the cause.

Before quitting this subject, we have only one point on which to advert, the proportion of corporal punishment. The proportion of men subjected to this artificial species of injury in the Windward and Leeward Command has amounted on a long average of the last twenty years, to 50 per 1000 annually. This is six times higher than the same proportion has been in this country, taken on the average of the last three years during which corporal punishment has been much restricted. The following table shows a gradual diminution in this circumstance in the Windward and Leeward Command, till it approaches the recent rate in the British dominions.

	1817	1818	1819	1820	1821	1822	1823	1824	1825	1826	1827
No. corporally punished.	692	647	344	204	230	251	255	350	167	120	102
Ratio per 1000 of strength do.	135	154	91	56	63	76	78	84	37	26	24

	1828	1829	1830	1831	1832	1833	1834	1835	1836	Tot.	Aver.
No. corporally punished.	154	121	173	131	111	69	75	89	42	4327	216¼
Ratio per 1000 of strength do.	37	29	38	31	26	14	14	16	8		50

On the subject of the Diseases of the Black Troops and Pioneers, our limits will permit us only to notice the following facts. The admissions into hospital have been on an average during the last twenty years, 800 per 1000; and the deaths have been 40 per 1000. This shows that the sickliness among the black troops is considerably below one-half of that of the white forces; and that the mortality is a little below a-half, or as 4 to 8½. It is important to observe, however, that the mortality among the negro troops is three times as high as among the native troops in the East Indies. It may be here observed, that the same proneness to a high rate of mortality attends the negro race in every quarter of the globe. In the Mauritius they die at nearly the same rate as in the West Indies. In Ceylon, a body of them became extinct in a few years. At Gibraltar, where the 4th West India regiment was stationed for two or three years, the mortality was 62 per 1000; and at Sierra Leone it was 28 per 1000 annually.

Diseases of the lungs are in this class of troops exceedingly prevalent and very fatal. They are indeed less common than among the whites, being only 99 per 1000; but in mortality they are much more so, being 16⅓ per 1000.

In order to convey an idea of the general influence of the climate, and the respective effects of particular islands upon the health of the troops, we give the following tabular view.

	Aggregate Strength of Troops.	Total Deaths among Troops.
British Guiana,	20,989	1,619
Trinidad,	14,506	989
Tobago,	5,503	591
Grenada,	8,166	441
St Vincent's,	8,507	447
Barbadoes,	32,857	1,812
St Lucia,	11,420	873
Dominica,	7,177	747
Antigua, &c.	11,624	430
St Kitt's, &c.	7,226	478
Total,	127,975	8,427
Total as above,	127,595	8,448
Difference,	380	21

The chief object of this table is to demonstrate the agreement and discordance of the returns of strengths and deaths, as given by the Medical Reports and the War Office Returns. It appears from the comparative view now exhibited, that during the whole period of twenty years, there is a difference of only 380 in the strength, and 21 in the deaths; and as this gives an average annually of 19 in the strength, and about 1 in the deaths, it is not likely to produce any material impression on the deductions formed.

The following table, which is compiled from the tabular views of the sickness and mortality at each station in the command, shows at a single glance the ratio of mortality per 1000 caused by each disease at each station among the white troops.

	Annual Ratio of Mortality per 1000 of White Troops serving at each of the following Colonies.										
	British Guiana.	Trinidad.	Tobago.	Grenada.	St Vincent's.	Barbadoes.	St Lucia.	Dominica.	Antigua, &c.	St Kitt's &c.	Average of whole Command.
By Fevers .	59.2	61.6	104.1	26.3	11.2	11.8	63.1	49.3	14.9	42.1	36.9
Eruptive Fevers					.3						
Diseas. of Lungs	6.4	11.5	11.	6.6	10.5	15.8	12.5	8.3	9.	9.5	10.4
Do. Liver,	1.	1.1	2.	4.5	1.6	1.4	1.	1.7	2.8	2.2	1.8
Do. Stomach & Bowels,	8.9	17.9	24.	16.1	24.2	20.8	39.3	70.3	9.2	10.3	20.7
Do. Brain,	4.4	4.7	5.	4.6	2.8	3.3	4.3	5.3	1.9	2.8	3.7
Dropsies, .	1.2	7.7	3.5	.8	1.6	2.4	2.	.7	1.4	.9	2.1
All other diseases,	2.9	1.8	3.2	2.9	2.7	3.	.6	1.8	1.4	3.2	2.9
Total, .	84.	106.3	152.8	61.8	54.9	58.5	122.8	137.4	40.6	71.	78.5

In this tabular statement the reader perceives at once the most prevalent and most destructive diseases at each station; and also the kind of sickness which is most predominant. Thus, while fever presents throughout the whole command the highest ratio of all diseases, excepting at two islands, St Vincent and Barbadoes, it causes a higher mortality at Tobago than at any other place, being almost double what it is at British Guiana, Trinidad, and St Lucia, and three times as high as the average mortality of fever in the command. Trinidad and St Lucia are in this respect nearly on a footing of equality. Next to these stand British Guiana, Dominica, and St Kitts; lower down we find Grenada; and at the foot of the list Antigua, St Vincent, and Barbadoes.

For mortality from diseases of the alimentary canal again we find Dominica placed at the top of the list, being more than three times higher than the average; and next to these appear St Lucia, which is double the average, and St Vincent and Barbadoes. Pulmonary diseases are most fatal in Barbadoes, St Lucia, Trinidad, and Tobago, in the order specified, all being above the average rate; while they are less fatal in British Guiana and Grenada, at both of which places the rate of mortality is a good deal below the average. At Grenada and Antigua liver diseases are most fatal; and at Trinidad dropsical distempers. In the latter it has been long known, that, besides the ordinary dropsical affections, a similar disease of peculiar characters, known by the name of *Cachexia Trinidadensis*, is endemial. On this malady no specific information is given; but from various facts there is the strongest reason to believe that it is a symptomatic effect of pneumonia, or pneumo-bronchial inflammation.

Among the black troops, though the operation of a similar influence may be recognized, greater uniformity in the degree of mortality, or rather in the distribution of fatal diseases, is observed. This becomes evident by the following table.

	Annual Ratio of Mortality per 1000 of Black Troops and Poineers serving in each of the following Colonies.										
	British Guiana.	Trinidad.	Tobago.	Grenada.	St Vincent's.	Barbadoes.	St Lucia.	Dominica.	Antigua, &c.	St Kitt's, &c.	Average of whole Command.
By Fevers, .	8.5	3.2	8.6	4.8	.9	3.8	5.2	7.7	1.7	10.	4.6
Eruptive Fevers,		7.			1.8	.2	5.4	.4	.3		2.5
Diseas. of Lungs,	17.9	16.4	12.	9.5	13.	18.7	14.8	16.7	16.8	23.9	16.5
Do. Liver, .	.3	.8	1.	1.		.9	.9	1.6	1.7	.7	.9
Do. Stomach and Bowels, .	5.8	5.5	4.8	4.2	11.2	12.1	7.1	7.4	3.6	6.3	7.4
Do. Brain, .	3.3	2.8	2.	4.2	2.8	1.9	2.4	.4	1.4	1.4	2.2
Dropsies, . .	2.4	1.1	4.3	2.1	2.8	3.1	2.6	1.2	.9	.7	2.1
All other Diseases	2.4	2.9	1.5	2.6	3.7	5.3	4.3	4.5	2.5	2.8	3.8
Total, .	40.6	39.7	34.2	28.4	36.2	46.	42.7	39.9	28.9	46.3	40.
Ratio of mortality among male slave population of all ages in these Colonies,	34.	30.	47.	36.	34.	31.	35.	35.	30.	30.	30.

In this table a very striking change in the distribution of the mortality is seen to take place. While among the whites the greatest mortality is observed to be caused by fevers, this is suddenly changed among the black troops, and is transferred to the diseases of the lungs and those of the alimentary canal, the former of which cause nearly four times, and the latter nearly twice, as much mortality as fever. It is also shown that the mortality among the black troops is in all the islands higher than the mortality of the male slave population ; and that, on the average, the former is to the latter in the ratio of 4 to 3. As the mortality of the troops is calculated upon men in the prime of life only, and as that of the negro slave population is calculated on males of all ages, including old men and infants, sickly and healthy, the increased mortality among the former shows that the troops must be under the influence of some deteriorating agents, from which the male slave population are either wholly or partially exempt.

Though the climate of the islands and continent comprehended in the Windward and Leeward Command has been thus shown to be sufficiently noxious to the health of the white, and by no means favourable to that of the black, it further appears that the degree of deleteriousness is by no means at all times and in every season equal. Not only does the degree of insalubrity to the white forces vary in different islands as already shown, but it varies in different years. With the view of demonstrating the extent of this variation, the authors of the report give the following table, exhibiting the relative degree of health enjoyed by the white troops in each of the colonies for every year embraced by the Report.

Years.	Out of every 1000 White Troops in the undermentioned Colonies, the following proportions have died in each year from 1817 to 1836 inclusive.										Average of whole Command.
	British Guiana.	Trinidad.	Tobago.	Grenada.	St Vincent's.	Barbadoes.	St Lucia.	Dominica.	Antigua, &c.	St Kitt's, &c.	
1817	64	257	235	190	148	123	87	559	54	70	162
1818	27	398	176	105	96	77	206	209	35	170	126
1819	73	152	222	68	33	59	92	67	30	9	83
1820	160	30	814	51	36	102	81	63	25	74	105
1821	217	23	270	75	55	121	123	396	49	106	109
1822	77	66	88	45	63	58	394	99	32	15	77
1823	60	60	25	24	71	23	123	76	50	51	49
1824	117	68	54	19	66	49	229	57	20	60	70
1825	94	108	87	57	77	49	93	110	32	126	76
1826	95	92	135	48	55	44	75	133	26	31	68
1827	144	79	67	80	91	34	272	68	54	17	85
1828	134	167	94	135	44	37	60	43	67	39	81
1829	59	21	116	69	36	49	88	97	53	63	58
1830	82	41	148	15	25	49	142	94	30	52	65
1831	110	62	135	21	27	66	74	68	36	25	69
1832	34	73	67	34	50	94	56	91	24	45	64
1833	55	49	75	19	23	36	108	132	43	80	50
1834	53	42	39	27	19	25	73	110	38	44	43
1835	60	62	34	54	26	32	93	141	78	83	57
1836	35	67	269	85	40	53	197	69	37	172	77
Aver.	84	106.3	152.8	61.8	54.9	58.5	122.8	137.4	40.6	71.	78.5

This table shows a very great disparity in the mortality of different islands and stations during the same year, and of the same island during different years. Thus in 1817, we see the mortality in Dominica 559 per 1000, or considerably more than one-half, while next year in the same island it is only one-fifth. In the same years it is in Trinidad 257 and 398 per 1000 respectively; and attains the latter height in St Lucia only in 1822. In the year 1820 it rises at once in Tobago so high as 814 per 1000, or 81 per cent. which is the greatest mortality in the whole command; and which is evidently the circumstance which has placed this deadly spot at the head of the whole list, in the average rate of mortality. It further appears, that the climate of the latter island appears from some unknown cause to have become more deleterious than formerly to the European constitution. It results from the returns, that, previous to 1817, the mortality never exceeded

80 per 1000, was most frequently between 50 and 59, and was on an average of ten years previous to 1817 only 50 per 1000, or 5 per cent.

It seems difficult if not impossible to trace these great outbreaks of fatal sickliness to any general or palpable cause; and consequently impossible to recognize any thing like the operation of a general law. There is, however, one circumstance which we believe may be very often shown to be connected with the increased proportion of sickliness and mortality. Whenever a body of troops, considerable in number, arrive from Europe in any of these islands, it is very generally observed that the mortality is increased for that and the subsequent year, or if not at once increased, it undergoes a very great increase the subsequent year or two. We do not here enter into the question of alleged seasoning. We merely state the fact as we know it to have very frequently taken place. To this subject, however, at a subsequent part of this article, we may recur.

B. *The Jamaica Command.*—The health of the troops stationed in this island forms the second division of the report.

From a tabular statement of the strength, admissions, and deaths among the troops for twenty years from 1817 to 1836 inclusive, it appears that among a force of 51,567 there were 93,455 admissions into hospital, and 6254 deaths; or among an average strength of 2578, 4672 admissions, and 313 deaths took place annually. The admissions, therefore, were at the rate of 1812 per 1000, or, in other words, every soldier in the island of Jamaica had an attack of sickness twice in the course of thirteen months.

This shows two facts; the one that the extent or amount of sickness is less than in the Windward and Leeward Command, nearly in the ratio of 18 to 19; the other, that the mortality is greater in the ratio of 121 to 78.

It appears, however, that even 121 per 1000 does not represent the actual mortality occurring in Jamaica, for the same reason that 78.5 does not represent the actual mortality in the Windward and Leeward Command; and a similar rectification requires to be made. Thus, in the *first* place, the medical returns represent the deaths to be 6254; according to the War-Office returns, they are 6596, showing a difference of 342 in the course of twenty years, or $17\frac{1}{10}$ annually. When the requisite calculations are made, this raises the annual average mortality per 1000 to 128, $(2578 : 313 + 17 :: 1000 : 128.)$ In the *second* place, several invalids die annually on their passage homeward, or soon after their arrival; and it is calculated that the requisite allowance for this source of under-statement will raise the annual average mortality to 130 per 1000. In the *third* place, it appears that the medical returns state the strength of the troops about 10 per cent. higher than it really is shown to be by the War-

Office returns, in consequence of the former taking the highest strength in the course of the year or quarter, instead of the mean monthly strength. For this error the rectification requires the addition of one-tenth, which raises the annual average mortality to 143 per 1000; $(130 + 13 = 143)$, so that a seventh part of the whole force has died annually during the last twenty years.

Much of this high rate of mortality has been caused by four severe and fatal epidemics of yellow fever in the years 1819, 1822, 1825, and 1827, during which, the total mortality among 10,379 troops, amounted to 2677, or the average mortality rose to 259 per 1000. As a contrast to this, we are informed that in four of the most healthy years, viz. 1823, 1828, 1829, and 1836, the deaths among 10,508 men were 704, or 67 per 1000. Thus it appears that, during the periods reported in Jamaica as the most healthy, the mortality among the troops is from four to five times greater, and during unhealthy years, it is nearly sixteen times greater than in the same class of persons in Great Britain, (15.)

Jamaica has been, indeed, always remarkable for its insalubrity to the European residents. In 1665 the deaths among the troops during the sickly season averaged 140 per week, and reduced a force of 7000 in a short time to fewer than 2000; and some years later, of 800 who arrived, two-thirds died within a fortnight.

Dr John Hunter informs us that, within less than four years, between 1779 and 1783, though 7000 men had been sent to this island in the first three years, 3500 died of fever, and at least 1750 were invalided in consequence of bad health; leaving within a space of less than four years a force of not more than 2000 men. The ratio of mortality in this case, in which the deaths took place within the space of four years, and, in short, in about three years and six months, was 143 per 1000; and if allowance be made for omissions, overstating strength, &c. it was probably 150 per 1000.*

From a tabular statement in the present report, it appears that the annual average mortality during the fourteen years, between 1803 and 1817, was 127 per 1000. No amelioration, therefore, has taken place in the climate of Jamaica. The diseases by which this mortality is caused, are, *first*, and principally fevers; *secondly*, diseases of the lungs; and, *thirdly*, diseases of the alimentary canal. All other disorders constitute a proportion too trifling to merit attention. The admissions on account of fevers amount to 910 per 1000, annually, of the mean strength; and the annual average mortality is 101.9 per 1000. In other words, more than nine-tenths of every 1000 are annually ill of fever, and more than one-tenth is destroyed. Diseases of the lungs attack only $84\frac{8}{10}$ per 1000, but destroy 7½ per 1000; and conversely, diseases of the alimentary canal attack 238 per 1000, and destroy 5.1 per 1000;

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* Observations on the Diseases of the Army in Jamaica, &c. By John Hunter, M. D., F. R. S. London, 1788, Chap. ii. p. 70, &c.

so that diseases of the lungs are less prevalent, but more fatal than diseases of the alimentary canal. Disorders of the brain and its membranes are rather unfrequent, being only 14 per 1000, and their mortality not more than 2.6 per 1000.

These numbers prove, at a single glance, that the great mortality in Jamaica is occasioned by fevers. The proportion in which the different fevers prevail and prove fatal, is shown by the following table:

Fevers.

	Admissions.	Deaths.	Proportion of Deaths to Admissions.
Intermittent Fever, .	6,090	37	1 in 165
Remittent, . .	38,393	5,114	1 8
Common continued, .	1,971	86	1 23
Yellow Fever (Icterodes,) .	20	15	1 1⅓
Synochus, . .	448	1	1 448
Total,	46,922	5,253	1 in 9
Annual ratio per 1000 of mean strength, .	910	101.9	

This table shows that the large majority of these disorders is of the kind denominated remittent, which is also, excepting the intense form named yellow fever, by far the most fatal. Next in prevalence, though not in fatality, stands ague, which is succeeded by common continued fever and *synochus*. We confess our inability to understand the distinction between the two last, as we have always regarded *synochus* as merely another name for common continued fever. As, however, this is not the place to enter into any disquisition on the nosological distinctions of the different disorders, we merely mention the circumstance, that medical officers in that quarter may again examine the matter, and consider whether these two be not referable to the same head.

Jamaica is more subject to remittent fever in an epidemic form than any other of the West India stations. In the years 1819, 1822, 1825, and 1827, they were so severe and fatal at some stations, that nearly one-half of those attacked died.

The small number of cases under the head of yellow fever (20) must excite some attention if not surprise; and these feelings cannot be diminished when we find the reporters stating, that "though hundreds of cases occurred in which the patients died with black vomit, and all the worse symptoms of that disease, we find but twenty cases reported under that head. These men were brought from the outpost of Lacovia, where they had been attacked by fever of so aggravated a character, that fifteen of them died within a few hours after their return to Fort Augusta." These statements must be regarded by every unbiassed and impartial mind as proving to demonstration two facts,—the first, that the most intense forms of yellow fever may be generated in various points of Jamaica, totally independent of importation; and the second, that the difference maintained by many between remittent and yellow fever is entirely one of degree and not of kind, and is, therefore, more or less artificial and arbitrary. After the statement of such facts as are contained in the present report on this subject, it would be curious to hear what Sir William Pym and similar advocates for the separate existence of that creation of the fancy called Bulam Fever could say. To maintain that Bulam fever is any other than an intense form of the endemial remittent, must require either great hardihood, or a singular disregard of matter of fact and observation.

The rectification of error is always gratifying to the mind that sincerely seeks for truth; and in the present report, the means of rectifying several vulgar errors on the characters and effects of this distemper are found. It has been long taught, that yellow fever attacked only once, and that one sufficient attack insures exemption from a second; and unquestionably, the frequency with which the disease destroyed, rendered this proposition often extremely true. The statement had been controverted, however, by various observers, as Rush, Bancroft, Jackson, Sir James Fellows, and some others, who have adduced various instances of second attacks in different epidemics. The reporters observe regarding the fever of Jamaica, that one attack furnishes no immunity from a second. The returns, on the contrary, show that 75 per cent. of the strength have been under treatment for it annually; in other words, every man, whether resident for a longer or shorter period in the island, has an attack every sixteen months. The other fact to which we allude relates to the supposed seasoning or acclimatization maintained by many to be acquired by residence in a tropical country, and which has been represented to render the system more capable of resisting the influence of the causes of remittent fever, or enduring the process, and withstanding its effects when induced. It is manifest, however, that the constitution of the European certainly does not become habituated to the climate so as to resist the influence and operation of the cause of endemial fever; and it is also evident that the constitution cannot be said to be improved by four attacks of that severe and enfeebling distemper within the space of five years.

We have stated that the tables show diseases of the alimentary canal to be more prevalent but less fatal than those of the lungs in Jamaica. The distribution of the latter tribe of disorders is represented in the following table.

Diseases of the Lungs.

	Admitted.	Died.	Proportion of Deaths to Admissions.
Inflammation of the Lungs,	697	15	1 in 46
Pleurisy, - - -	29	0	0 in 29
Spitting of Blood, - -	108	12	1 in 9
Consumption, - -	661	315	1 in 2
Acute Catarrh, - -	2,438	18	1 in 135
Chronic Catarrh, -	371	23	1 in 16
Asthma, - - -	41	3	1 in 14
Difficulty of Breathing, -	12	2	1 in 6
Total, -	4,357	388	
Annual ratio per 1000 of mean strength, -	85	7.5	

This table shows that this tribe of diseases has been about one-third less prevalent, and one-third less fatal than in the Windward and Leeward Command. As in that command, however, the most fatal of all is consumption, which constitutes more than six-tenths of the whole mortality resulting from pulmonary disorders. That consumption also is a more prevalent disorder in Jamaica than in Great Britain appears from the fact, that among an aggregate force of 51,567 serving in Jamaica, 661 soldiers have been under treatment for that disorder, being at the rate of 13 per 1000 annually; whereas of an aggregate strength of 44,611 Dragoon Guards and Dragoons serving in the united kingdom, only 286 have been under treatment, or between 5 and 6 per 1000 annually, though during the period specified two severe epidemics of influenza prevailed, and doubtless contributed to accelerate the fatal issue of this order, if not to sow the seeds of several.

These facts, combined with those already adduced under the same head in the Windward and Leeward Command, confirm in the strongest manner what has been frequently of late years stated by various medical authorities regarding the baneful influence of the climate of the West Indies in accelerating the progress of consumption. But they further show, what could not be learned by any other channel, that at least twice as many cases of consumption originate in that climate as at home, though those catarrhal diseases, to which the origin of consumption is generally ascribed, are there comparatively rare. The practical inference to be deduced from these facts is, that, generally speaking, a tropical climate can neither prevent the developement, nor arrest the progress of pulmonary consumption; and that, consequently, the practice of sending thither patients either threatened with, or presenting actual symptoms of consumption, is decidedly bad.

The distribution of diseases of the alimentary canal is represented in the following table.

Diseases of the Stomach and Bowels.

	Admitted.	Died.	Proportion of Deaths to Admissions.
Abdominal Inflammation,	2	1	1 in 2
Inflammation of the Stomach,	42	4	1 in 10
Ditto of the Bowels,	52	11	1 in 5
Vomiting of Blood,	9	4	1 in 2
Acute Dysentery,	4,473	114	1 in 40
Chronic Dysentery,	436	70	1 in 6
Indigestion,	579	5	1 in 116
Colic,	1,107	4	1 in 277
Obstipation,	196	2	1 in 98
Cholera Morbus,	216	3	1 in 72
Diarrhœa,	5,169	42	1 in 123
Cancer of the Stomach,	1	0	0 in 1
Total,	12,282	260	1 in 47
Annual ratio per 1000 of mean strength,	238	5.1	

It here appears that the proportion of admissions into hospital by this tribe of disorders is only about one-half, and that of deaths scarcely one-fourth so high as in the Windward and Leeward Command. The most prevalent disorders are acute dysentery and diarrhœa; and the most fatal are inflammation of the bowels and chronic dysentery. But the last mentioned disease is not so fatal as in the Windward and Leeward Command, while acute dysentery is only about half as fatal, and diarrhœa about one-third. This mitigated form of these disorders is ascribed by the reporters to the more liberal supply of fresh provisions in Jamaica, which, it is observed, if it do not prevent the occurrence of the disease, may have a material influence in modifying its virulence, by furnishing a more digestible and less irritating species of food than is obtained from salted meat. It will be seen also that intemperance in the use of spirituous liquors is less prevalent in Jamaica than in the Windward and Leeward Islands; and this is known to be a powerful agent, if not in producing, at least in aggravating all the disorders of the alimentary canal.

The following table of the distribution of the diseases of the brain and it membranes, is, like that already given of those in the Windward and Leeward Command, useful chiefly as it shows how small a proportion is the result of the climate, and how many are the effects of human folly and imprudence.

Diseases of the Brain.

	Admitted.	Died.	Proportion of Deaths to Admissions.
Inflammation of the Brain,	31	13	2 in 5
Headache,	6	0	0 in 6
Stroke of the Sun,	6	2	1 in 3
Apoplexy,	93	53	1 in 2
Paralysis,	33	7	1 in 5
Epilepsy,	258	19	1 in 14
Fatuity,	39	1	1 in 39
Madness,	62	0	0 in 62
Brain Fever of Drunkards,	192	42	2 in 9
Total,	720	137	1 in 5
Annual ratio per 1000 of Mean Strength.	14	2.6	

It here appears that more than one-fourth of the whole are the direct effects of intemperance in the use of spirituous liquors. If these be deducted, it reduces the admissions to 10 per 1000, and the deaths below 2 per 1000 annually, which is still fully double what takes place from the class of disorders in Great Britain. It is remarkable that, though the cases of methystic brain-fever are in Jamaica scarcely one-third so numerous as in the Windward and Leeward Command, they are about twice as fatal, the mortality being 2 in 9 in the former island, and 2 in 16 in the latter command. The remark of the reporters is, that "soldiers must either have less facilities for intemperance in Jamaica, or it does not there produce so prejudicial an effect." Fewer facilities for drinking they may have; but it is quite clear that these facilities produce about double the amount of mischief.

The remarks already made on the comparative sobriety of the black troops in the Windward and Leeward Command are still more strongly illustrated by the prevalence of this disorder among the black troops in Jamaica. Among an aggregate force of 5729 maintained in this island for twenty years, only a single case of the drunkard's brain-fever took place, and no death ensued.

On the prevalence and mortality of other tribes of disorders it is unnecessary to dwell.

Corporal punishment appears in the early part of the present century to have been frightfully common; and between 1816 and 1821, it varied from 193 to 105 per 1000. In 1824 it fell to half this amount, next year to one-fourth, and has between 1825 and 1835 fluctuated between 27 and 37 per 1000,—being more frequently near, or at the former, than the latter. In 1836 it fell at once to 8 per 1000, which is the ratio in this country, and which is only one-eighth of the average annual amount of punishments in Jamaica (64,) in the course of twenty years.

On the comparative health and degree of mortality among the black troops, our limits permit us to make only the following observations. The general mortality among the whole black forces in Jamaica is 30 per 1000 annually, which is very nearly equal to the mortality among the slave population in the Windward and Leeward Islands, [30 per 1000 male slave population; 31 per 1000 of all ages;] and 10 per 1000 better than that of the black troops in the Windward and Leeward Command. The mortality of the slave population of all ages in Jamaica is 25 per 1000; a clear proof of the superior salubrity of the climate of this island to that of the Windward and Leeward Islands.

Here again is recognized the proof of the same fact already noticed, when speaking of the black troops on the Windward and Leeward Command; viz. that the troops in Jamaica must be exposed to the influence of some morbific agents, from which the slave population is exempt.

It must be observed, however, that the same tribes of diseases which produce greatest mortality among the white troops in Jamaica than in the Windward and Leeward Islands, cause also similar destruction among the black troops, though in a slighter degree, and those which are less fatal among the white troops, are also less fatal among the coloured forces.

Thus while the mortality by fevers is nearly three times greater in Jamaica among the white troops than in the Windward and Leeward Command, it is about twice greater among the black forces in the former than in the latter. Conversely, the mortality by diseases of the lungs, the alimentary canal, and the brain, which is considerably less among the white troops in Jamaica than among the same class in the Windward and Leeward Command, is also less among the black troops in the same island.

The influence of the different stations in the island upon the health of the troops next occupies attention. As our limits will not allow us to follow the report through the details on each station, we shall attempt to convey some idea of the respective salubrity of each, by the following tables, with such observations as their examination has suggested.

The first table presents a view of the aggregate strength and the total deaths at each station on the island during the course of twenty years, as established by the medical returns; and the sum total of each, as presented by the War-Office returns, in order to scrutinize the accuracy of the former, as a basis for all subsequent calculations and deductions.

Stations.	Aggreg. Strength.	Total Deaths.	Stations.	Aggreg. Strength.	Total Deaths.
Up-Park Camp,	14520	2042	Green Castle, .	84	20
Port Royal, .	5068	573	Chapelton, .	91	14
Fort Augusta, .	7786	572	Biddeford, . .	63	16
Spanish Town,	6719	1091	Lacovia, .	76	25
Stoney Hill, .	7243	653	Unity Estate, .	70	12
Port Antonio, .	2478	370	Phœnix Park, .	247	7
Falmouth, . .	3888	399	Montpelier, .	268	8
Montego Bay, .	889	159	Mandeville, .	227	8
Maroon Town,	3797	124	Caledonia, .	242	16
Lucea, . .	1566	133	At Kingston, in 1825, not included with Fort Augusta.	150	56
Savannah-la-Mar,	506	76			
Port Maria, .	58	24			
Manchioneal, .	22	9			
Buff's Bay, .	25	7	Total, .	56478	6474
St Ann's Bay,	70	11	Total as above,	57296	6426
Sans Souci, .	185	12			
Bath, . .	140	37	Difference,	818	48

It hence appears, that, between the medical returns and those transmitted to the War-Office, the discrepancy during twenty years is 818 in the aggregate strength, and 48 in the amount of deaths,—which furnishes an annual discrepancy of 40 in the strength and 2 in the deaths,—numbers too small to produce any serious influence on the ultimate deductions.

The next table presents a comparative view of the mortality by each tribe of diseases at the principal stations on the island, stated for every thousand of the force.

	Annual ratio of Mortality per 1000 of the White and Black Troops, serving at each of the following subordinate Stations										Ratio of Mortality per 1000 of White Troops serv. through. Island.
	Up-Park Camp.	Port Royal.	Fort Augusta.	Spanish Town.	Stoney Hill.	Port Antonio.	Falmouth.	Montego Bay.	Maroon Town.	Lucea.	
By Fevers, .	121.	93.9	55.5	141.1	70.5	126.	80.	150.7	15.3	63.2	101.9
Diseas. of Lungs,	8.5	7.3	9.7	9.1	6.5	5.2	8.7	7.9	6.3	10.2	7.5
Do. Liver, .	.8	1.6	.3	.3	1.9	1.2	1.6	...	.3	6.	1.
Do. Stomach and Bowels, .	5.8	5.9	3.3	4.8	5.8	6.9	2.6	5.6	3.7	4.5	5.1
Do. Brain, .	2.	2.4	1.3	3.7	1.2	2.8	4.8	10.2	1.3	1.9	2.6
Dropsies.	.8	.6	.7	1.6	1.9	2.4	2.6	1.1	2.4	1.9	1.2
All other Diseases	1.7	1.4	2.7	1.8	2.4	4.8	2.3	3.4	3.4	2.6	2.
Total, .	140.6	113.1	73.5	162.4	90.2	149.3	102.6	178.9	32.7	84.9	121.3

The materials do not, in this tabular statement, admit of the diseases and deaths of the black troops or pioneers at each station being stated separately from those of the white troops. But, on the supposition that the former are distributed in equal proportion through the island, and that the deaths among these amount to 32 per cent. annually, an approach to the proportion of mortality among the white troops may be made in the following manner. Taking the station of Up-Park Camp for an example.

	Strength.	*Mortality.*
Conjoined strength of white and black troops,	1000	140.6
Deduct for black troops and poineers, -	100	3.2
Remain strength & deaths of white troops only,	900	137.4

This raises the ratio of mortality among the white troops alone to 152.6 per 1000 annually at Up-Park Camp; and the same calculation may be applied to the rates of mortality afforded by the other stations in the island.

In the next table is given a condensed view of the whole of the results obtained at each station for each of the twenty years between 1816 and the end of 1836, so as to indicate not only the respective mortality of each station, but the variable mortality of every year.

Years.	Out of every 1000 Troops at the undermentioned Stations, the following proportions have died in each year from 1817 to 1836 inclusive.										Average of whole Command.
	Up-Park Camp.	Port Royal.	Fort Augusta.	Spanish Town.	Stoney Hill.	Port Antonio.	Falmouth.	Montego Bay.	Maroon Town.	Lucea.	
1817	83	39	34	128	97	192	74	89	[illegible]	71	88
1818	65	50	33	278	87	89	67	87	10	95	89
1819	501	316	103	68	301	346	130	...	12	79	294
1820	160	58	92	278	50	84	192	...	29	45	153
1821	130	225	44	91	45	219	53	...	26	41	116
1822	443	205	51	242	47	52	117	51	30	76	171
1823	82	83	31	200	25	51	24	...	35	87	65
1824	45	100	81	207	30	194	52	217	38	64	84
1825	341	321	58	399	453	...	184	...	30	178	307
1826	72	94	61	186	18	...	227	...	21	43	80
1827	225	155	280	164	287	94	233	...	30	30	224
1828	118	18	84	82	37	147	61	212	41	12	74
1829	43	82	70	51	13	233	51	109	15	35	62
1830	120	148	42	124	18	135	86	...	58	350	97
1831	110	34	79	236	174	124	255	...	48	...	133
1832	91	32	24	57	72	185	75	358	67	167	111
1833	78	39	56	67	31	226	70	174	81	35	86
1834	70	107	51	155	35	173	95	121	16	26	93
1835	52	36	70	194	34	117	84	54	4	25	75
1836	51	9	60	144	21	25	38	348	29	160	61
Gener. Aver.	140.6	113.1	73.5	162.4	90.2	149.3	102.6	178.9	32.7	84.9	121.3

On the facts furnished by these tabular statements, a few remarks may now be offered.

It appears, in the first place, that by far the most unhealthy stations in the island of the whole of those mentioned in the table, are in the order specified, Montego Bay (178.9), Spanish Town (162.4), Port Antonio (149.3), and Up-Park Camp (140.6), all of which are above the average mortality (121.3). It is true that there are on the island various other stations, which have been long infamous for causing rapid and great mortality among Europeans, and most of which are shown in the present report to be higher than some of these, and than the average. Such stations are Savannah-La-Mar, Port Maria, Manchioneal, Bath, Green Castle, Chapelton, Biddeford, Lacovia, and Unity Estate. But these places have been garrisoned only in particular emergencies; and the mortality there occasioned at these periods has been so high, that no consideration whatever should be considered adequate to justify a similar proceeding at any subsequent period. Supposing, therefore, that this point is clearly and indisputably established, we confine our observations to those stations to which troops are usually and habitually sent.

Less sickly and more favourable stations than those already noticed, are, Port Royal, (113.1), Falmouth, (102.6), Stoney Hill, (90.2), Lucea, 84.9, Fort Augusta, (73.5), and, above all, Maroon Town, which is so low as 32.7 per 1000. Still more favourable are such situations as Phœnix Park and Montpelier, at the former of which the mortality was 29, and at the latter 30 per 1000. The practical application of such facts as those now stated, is to show that such stations as Montego Bay, Spanish Town, Port Antonio, and Up-Park Camp, ought to be entirely abandoned; and that more salubrious positions should be selected for the accommodation of troops. It is long since Dr John Hunter pointed out the unhealthy nature of Up-Park Camp and Kingston. But he appears, without any good reason, to have regarded Spanish Town as a much more salubrious situation. From the facts adduced in the present report, it appears that Spanish Town is greatly more fatal to Europeans than Up-Park Camp, and indeed it stands in this respect next to Montego Bay, the most sickly of all the ordinary stations. The soil in the neighbourhood of Spanish Town is a tenacious clay, very retentive of moisture, flat and level to the foot of the mountains; and when moistened with the copious tropical rains, as no artificial means have been employed to drain it, it is covered with partial swamps, from which the solar rays produce rapid evaporation, and dry or parch the surface, while the subsoil retains the moisture, for withdrawing which no artificial means have been used. It is in this state chiefly that it is believed that the vicinity of Spanish Town becomes highly productive of fever.

At the same time to show how little is understood of the influence of soil, position, and physical circumstances in the production of endemic fever, it is proper to notice the contrast, in these circumstances, between Stoney Hill and Fort Augusta. Stoney Hill is situate about nine miles from Kingston, on an eminence in the Liguanea Mountains, 1360 feet above the level of the sea, with a soil of reddish clay mixed with sand, but in which, from the elevated position of the ground, the rain never lodges in any quantity, and in the vicinity of which there are no marshes or swamps. Fort Augusta is situate on a low neck of land about four miles from Kingston, and nearly the same distance from Port Royal, in the midst of an extensive marsh or lagoon surrounded by mangrove bushes, and abounding with every species of vegetable matter in a state of such decay, as to exhale most offensive odours when the wind blows from the quarter. Stoney Hill was imagined to be a healthy station, but it is not so. Its mortality has been on the average of twenty years 90 per 1000; on two occasions, 1819 and 1825, it was so high as 300 and 450 per 1000. At Fort Augusta, on the other hand, the mortality was between 1789 and 1794, so low as 3 per cent., and it has always been regarded as a comparatively healthy spot. Its average annual mortality compared from the same period, and by the same scale as that of Stoney Hill in the present Report, is 73½ per 1000,—an elevation in the ratio caused by the fatal years of 1819 and 1827, when the mortality was respectively 103 and 280 per 1000.

It is not unimportant to remark, however, that, with respect to the prevalence of pulmonary diseases, these two stations change characters. Though the temperature at Fort Augusta is equable, and the atmospheric vicissitudes are neither great nor frequent, and though, conversely, Stoney Hill is placed in such a situation that alternations might be expected to be considerable, and the atmosphere damp, yet pulmonary disorders are much less fatal at the latter (11½ per 1000) than at the former station, 9½ per 1000.

Not only, however, do different stations in Jamaica vary in the respective degrees of influence which they exert on the European constitution. In different seasons the sickliness and mortality vary throughout the island, and at different stations the same years are remarkable for very different degrees of mortality. Thus 1817 and 1818 appear to have been comparatively healthy through the whole island, except at Spanish Town, and Port Antonio. The year 1819, again, when Spanish Town suffered little, (68), was remarkable for high mortality at Up Park Camp (501), Port Royal (316), Fort Augusta (103), Stoney Hill (301), Port Antonio (346), and Falmouth (130), and in 1820 it was rather higher than usual, viz. at Up-Park Camp (160), Spanish Town (273), and Falmouth (192), while Port Royal, Fort Augusta, Stoney Hill, and Port Antonio suffered not more than the average. The year 1822 was remarkable for great sickliness and mortality in the island; yet the mortality was mostly confined to Up-Park Camp (443), Port Royal (205), Spanish Town (242), and Falmouth; the mortality at Fort Augusta (51), Stoney Hill (47), Port Antonio (52), and Montego Bay (51), having been much below the average. The ensuing year the mortality continued high at Spanish Town alone 200; and in 1824 it was still higher at Spanish Town (207), at Port Antonio (194), and Montego Bay (217); but in all other places very moderate. The years 1825 and 1827 were also distinguished by high mortality; the former in all the stations except Fort Augusta, which, as already shown, embraces in its position all the conditions requisite for an unhealthy place; the latter in all except Port Antonio and Lucea. The only station at which it was uniformly small is Maroon Town in the Trelawney Mountains.

To this subject of the extremely high mortality of certain years, and the low mortality of others in the West Indies, we have already adverted; and here once more the same peculiarity claims attention. Already, in considering this peculiarity, we incidentally adverted to one cause obvious in its operation when present, namely, the recent arrival of a body of troops, more or less considerable, from Europe. In the case of the Windward and Leeward Command, we had no means of ascertaining whether this were always the fact or not. In the case of the Island of Jamaica we shall now consider to what extent the operation of this cause is manifest. The materials of the following statements, with one exception, are contained in the Report before us.

The facts adduced by Dr John Hunter in the 2d Chapter of his excellent Observations on the Diseases of the Army in Jamaica, show clearly that during the years from 1779 to 1783, every new regiment which arrived in the island lost, within six or eight months after, from two-sevenths or five-twelfths to one-half of its strength by fever; in the course of the next year about one-sixth; and in the third year, if they continue so long in the island, about one-sixth more. The following tabular view contains the results of this statement regarding several of the corps then employed in Jamaica, with the proportion of their losses each year after arrival.

Regiments.	Strength.	1st year loss.	2d year loss.	3d year loss.	Tot. loss by death and invaliding.	Remaining strength.
79	1008	$\frac{2}{7}$	$\frac{4}{7}$	-	910	
88	791	$\frac{1}{3}$	$\frac{1}{5}$	-	550	
85	600	$\frac{5}{12}$	$\frac{1}{6}$	-	529	71
92	600	$\frac{5}{12}$	$\frac{1}{12}$	-	364	236
93	404	$\frac{1}{2}$		-	323	71
94	531	$\frac{1}{2}$	$\frac{2}{7}$	-	455	76

The documents afforded by Dr Hunter do not always supply the means of determining the exact amount of mortality separate from the loss by deaths and invaliding, but in general the invaliding varies from one-ninth to one-eighth. These numbers, however, are sufficient to establish the truth of the general proposition for which we contend, that the great mortality is occasioned shortly after the arrival of new forces either from Europe, or, as was then the case, from Canada or America.

In 1813, 1814, and 1815, among a strength varying from 3900 to 4330, the deaths were respectively 371, 322, and 334, In the year 1816, the 58th and 61st regiments arrived, soon after which the mortality rose to 434, or exactly 100 higher than it was in 1815.

In 1818, when the strength in the island was only 3025, the mortality was so low as 230, or 76 per 1000, which is much below the average mortality.

The year 1819, however, was distinguished for its great sickliness and its high mortality, being 294 per 1000, or 29½ per cent. This mortality was most conspicuous at Up-Park Camp, Port Antonio, Port Royal, Stoney Hill, Falmouth, and Fort Augusta in the order now specified, Though the mortality of all these stations cannot be explained on the principle now adopted, that at several may.

The 50th regiment, 800 strong, exclusive of women and children, arrived in Jamaica in March 1819, and was immediately sent to Up-Park Camp, and to the same station the 90th were sent in June following. At the early part of the year, yellow fever had begun to appear at this station, and in Port Royal, and in the end of June several cases appeared in both regiments. Detachments were then sent to Stoney Hill and Fort Augusta; but notwithstanding this precaution, by the end of July the sickliness had spread rapidly, and continued to rage with such violence during the greater part of August, that scarcely one man escaped an attack, and nearly half the number perished. The garrison was then broken up and removed to Stoney Hill, Fort Augusta, and his Majesty's ship *Serapis*, from which, however, they were landed in the middle of November, when the garrison was re-assembled at Fort Augusta and Stoney Hill.

To complete the history of these two regiments we follow them to Stoney Hill. The detachments successively sent from Up-Park Camp to this station between July and October, continued healthy till the beginning of the latter month, when the disease broke out among five companies of the 50th and 92d, and speedily destroyed nearly one-third. Of the fate of that part of these regiments which went to Fort Augusta no information is given. But as in that year the mortality was 103 per 1000, whereas the previous years it had been only 34 and 33, little doubt can be entertained that the detachments of these regiments contributed largely to this unwonted increase.

The following table shows the attacks and deaths in the 50th, and the strength and deaths in the 92d Regiments.

50th Foot.	Admitted.	Died.
Commissioned Officers,	30	11
Soldiers, -	769	231
Soldiers' wives, -	90	30
Soldiers' children, -	50	33

92d Foot.	Strength.	Died.
Commissioned Officers,	27	10
Officers' wives, -	5	4
Soldiers, - -	650	275
Soldiers' wives, -	60	29
Soldiers' children, -	70	38

Though this table does not give the strength of each class in the 50th Regiment, nor the admissions or attacks of each class in the 92d Regiment, the number attacked and destroyed are a sufficient proof of the accuracy of the statement now made. It is known that the admissions exceeded in number the strength, so that several must have had two attacks. The proportion of deaths to admissions was in general as 1 to 3.

The history of these regiments shows that neither sex nor age was spared; and that though in ordinary cases remittent or yellow fever attacks chiefly adult males, yet in epidemic seasons it attacks females and children nearly at the same rate as the male force. It has been further supposed, and indeed was expressly taught by Dr John Hunter, that a principal reason of the mortality in the West Indies was the practice of sending thither recently raised regiments, consisting of raw young men, as they are named, untrained to military duty, and unused to restraint. "The causes of a mortality so dreadful," he says, in speaking of the 93d Regiment, of which one-half died in six months, "are to be found in their being new-raised and undisciplined men, sickly and scorbutic on board the transports, arriving in the island at the most unhealthy time of the year, being in bad quarters, and having no adequate provision for the great number of the sick." chap. ii. p. 55. "The mischievous effects of sending new-raised men to the West Indies are exemplified in the strongest manner in all the young regiments." Yet what importance can be attached to the circumstances now assigned, when we learn that the 92d Regiment, consisting of hardy veterans, who had endured all the hardships and severities of the Peninsular campaign, suffered considerably more than the 50th Regiment, which consisted, with the exception of 40, of young men recently enlisted.

The next year for high mortality was 1822; and this we find was mainly the result of sickness attacking at the commencement of the year the remaining force of the unfortunate 50th Regiment, at least three companies stationed at Up-Park Camp, with such violence as to destroy one-fourth of them in a short time; and then attacking in the month of July of the same year the 33d and 93d Regiments just arrived from England. The following statement shows that in these circumstances of recent arrival from Europe, neither age, nor sex, nor condition is exempt.

The 33d lost	The 91st lost
4 Officers out of 21.	4 Officers out of 20.
8 Women out of 57.	8 Women out of 71.
17 Children out of 74.	10 Children out of 62.
67 Soldiers out of about 250.	88 Soldiers out of about 350.
There were four companies at Stoney Hill out of the range of the epidemic.	There were two companies at Stoney Hill out of the range of the epidemic.

The year 1825 was the next season distinguished by high mortality. In the report, the principal statement illustrating the principle now under consideration is the following.

" At the commencement of the epidemic, the troops at Stoney Hill did not exceed 418; in the month of March, 200 of these who had not been attacked by fever, were sent to Fort Augusta, and Up-Park Camp, where for a time they continued healthy. In June, however, in consequence of the disease having broken out at Up-Park Camp, and moderated at this station, those who had been sent there returned; and when it reappeared among them in August, about 100 of the survivors were, as a last resource, encamped on the hill, but without any decided effect. The disease continued to linger at the station till the end of the year, and then seemed only to wear out for want of fresh victims. The total number of troops at the station does not appear to have exceeded 800, except for a few weeks at the commencement of the epidemic, and yet of that small number 184 were cut off, and 11 officers out of little more than 20, in the course of eight months."—P. 59.

The 77th Regiment arrived in the island in February 1824, and the ensuing year the mortality was so high as 777 in the whole force.

Let us not, however, carry the argument too far. It cannot be denied that something besides recent arrival from Europe is requisite to constitute the circumstances favourable to the general or epidemic prevalence of fever. We shall afterwards see that, however plausible this view at first sight appears, it requires to be very much modified; and the facts furnished by the reporters lead to the inference, that recent arrival is not more favourable to susceptibility than long residence.

From a table exhibiting the total amount of admissions and deaths by acute disorders, by chronic distempers, by surgical and all other diseases during eighteen series of every month in the same number of years, it results that the most sickly as well as the most fatal period of the year extends from August to December, and that the only months comparatively healthy are March, April, and May, which possess the same character throughout the West

Indies, and indeed most parts of the northern hemisphere, so far as the health of troops is concerned.

C. and D. The sickness and mortality of the troops in the Bahama Islands and Honduras come next under consideration. Our limits will not permit us to examine the tables under these heads so minutely as we have done those in the two first divisions of the Report; and this is the less requisite as the general character of the inquiry is very similar.

II. In the second section, on the *Extent of Invaliding in the West Indies*, the statistical inquirer finds much accurate information on this head. It appears that comparison of the proportions invalided in a given time does not afford any accurate criterion as to the salubrity or insalubrity of the climate.

In Jamaica, where the annual mortality from all causes is 143 per 1000, the extent of invaliding is only 16 per 1000 of the strength annually. In the Windward and Leeward Command, where the annual mortality from all causes is 85 per 1000, the extent of invaliding is 24 per 1000 of the strength annually. But in Great Britain, where the annual mortality among the troops of the line is only 15 per 1000, the extent of invaliding even among the Dragoon Guards and Dragoons, who rarely serve abroad, is 26 per 1000 of the strength annually.

III. *Number constantly sick in Hospital in the West Indies.* —The foregoing facts must have shown that the natural sickliness of the climate must, at all times, keep a certain proportion of the force employed in military or garrison duty in an inefficient state in the West Indies. From a tabular statement of the numbers constantly in hospital during the space of twenty years, it results that among every 1000 of white troops, 87 are constantly ineffective from sickness in the Windward and Leeward Command, and 63 in Jamaica, though the latter is by far the most unhealthy. This peculiarity arises from the circumstance, that four-fifths of the mortality in Jamaica are caused by fevers, which rapidly terminate either in death or recovery, and only one-fifth from lingering diseases, as those of the lungs and of the bowels; whereas in the Windward and Leeward Command scarcely half the deaths are caused by fever, and almost all the others are by diseases which detain the patient long in hospital.

From this results another peculiarity in the diseases of these regions, viz. that during the ravages of epidemic fever, the mortality may be very great without the hospital being much more crowded than usual. And hence if, during the two periods of greatest health and greatest sickness in Jamaica, the hospital and mortality returns be inspected, while the number of deaths is very different, that of the sick is nearly the same. Thus in the months of March, April, and May 1827, during which the deaths were only 12 in the quarter, the sick in hospital were 237, 236, and 194 respectively. In the months of June, July, and August of the same year, during which the deaths were 252 in the quarter, the sick were 251, 267, and 273 respectively. The mortality was in the latter three months twenty times greater than in the former, without the average number in the hospital being materially increased.

IV. *Influence of age and length of residence on the mortality of the troops serving in the West Indies.*—It has been generally believed that the mortality among the Europeans, and especially among the troops in the West Indies, is greatest among the young, and decreases as life advances. The following table shows that the mortality increases with the advance of age, with infinitely greater rapidity than in this country.

	Annual ratio of Mortality per 1000 living at the following Ages.			
	18 to 25.	25 to 33.	33 to 40.	40 to 50.
In civil life in England by Carlisle tables, - -	7	8.9	10.7	14.1
Among Troops in the Windward and Leeward Command, - - -	50	74.	97.	123.
Among Troops in Jamaica Command, - -	70	107.	131.	128.

From the facts furnished by this table, the reporters infer that young soldiers in the West Indies possess, in a much higher degree, the power of resisting sickness and mortality than those beyond the 25th or 33d year; that the mortality between 33 and 40 is double, and between 40 and 50 treble what it is between 18 and 25; that consequently the most valuable portion of a soldier's services is the first ten years, and that the sooner they are sent to the service after 18 the better.

This subject leads, by a natural and gentle transition, to the consideration of what has been called acclimatization. It has been generally believed, that residence for some time in countries within the tropics, and especially in the West Indies, diminishes the susceptibility to be attacked by the diseases of the climate, especially endemic fever; that in persons who have undergone one attack of fever especially, the constitution undergoes such a change as renders them less liable to be attacked subsequently, and if attacked, less likely to sink under the disorder; and that those bodies of men, consequently, who have been several years on the station, are better fitted for enduring its fatigues and duties the longer they remain, and are in all respects increased in value and efficiency every year that they continue there. It appears from the result of the inquiries contained in the present Report, that these conclusions have been founded on erroneous data.

Two sources of information are furnished for determining the exact state of the fact as to this matter. The first is, by considering the mortality among those bodies of men denominated drafts, by which the losses in different corps in the West India islands are from time to time supplied. The second is, by observing the losses commonly sustained by the regiments quartered in various West India islands during the period of their service there.

With regard to the first source, that of drafts who joined the service companies of different regiments stationed in Jamaica in the course of the seven years between 1829 and the close of 1836, it appears that bodies of men, amounting to a total sum of 1480, joined the different service companies during the period specified, that of these 114 died within one year after joining, that at the commencement of the second year, between deaths and those who left Jamaica before the second year was completed, 872 remained alive at the commencement of the second year; and of these 76 died in the course of that year. These numbers furnish the means of constructing the following table:—

	The Total Strength was	The Total Deaths,	Annual Ratio per 1000 of Strength.
Of those under one years' residence,	1480	114	77
Of those above one but under two ditto,	872	76	87
Total under two years' residence, .	2352	190	81
The total strength and deaths of all classes in the service companies of these corps was, during same period,	16653	1520	91
The difference shows the strength and deaths of those who were longer than two years resident in the island to have been	14301	1330	93

From this table it results, that while the annual mortality among those resident one year was only 77, and of those resident two years 87 per 1000, the mortality of those who had been longer in the island averaged 93 per 1000. The table is, in other respects, quite conclusive upon the question at issue; because it is during the first two years of residence, that the influence of climate is supposed to act most powerfully in those recently arrived.

In investigating the evidence afforded by the second source of information, which the authors have digested into tables at p. 92 and 93, conclusions of the same general character are obtained. Thus with regard to the forces quartered in the Windward and Leeward Command, it appears that for nine instances in which the mortality during the first year was above the average rate, in twelve it was below that average; that the mortality increased with the length of residence, in at least as many instances as it has diminished; and that on the average of the whole, the last years appear to have been more fatal than the first.

With regard to the mortality contemplated in the same manner in the troops quartered in Jamaica, the documents appear at first sight to favour the doctrine of acclimatization, as the mortality during the first year of service proved on the general average of all the corps nearly double that of any subsequent year. In this, indeed, we find entered the cases of the 50th and 92d Regiments already mentioned; and besides these we distinguish for high mortality during the first year of service, the 22d foot, the 84th foot, the 91st foot, and the York Chasseurs, all of which lost men above the average. It appears, however, that in examining the table attentively, some regiments lost more men during the second and third years of their residence than during the first, and of others the losses were not diminished by length of residence. Though the 33d foot lost 78 men, or 145 per 1000, the first year, and only 18 men or 32, and 34 men or 64 per 1000 the second and third years, in the fourth we observe 129 died, or 285 per 1000 died, and in the fifth, 115 or 270 per 1000. The 58th foot, which arrived 718 strong in December 1816, lost the first year only 58 men, and the second year 80 men; but in each of the third and fifth years 124 men died.

Again we find, that though in certain regiments considerable mortality takes place the first year, this by no means exempts them from a mortality sometimes equally great, sometimes greater during some of the subsequent years of their service. The 77th foot, which arrived in April 1824, 546 strong, lost the first year 105 men or 19 per cent.; but the second year, when they were only 383 strong, they suffered the larger mortality of 166 or 43⅓ per cent., indeed not much short of the half of their strength. Again, though the 91st, which arrived in February 1822, 482 strong, lost the same year 168 men, or nearly 35 per cent. and the two following years, when 449 strong, lost respectively, 49 and 54 men, and consequently, might have been believed to be well seasoned to the climate, yet the fourth year of their service, when 459 strong, they incurred the loss of 157 men, which was within a unit of two of as large a proportion as died the first year.

These facts are sufficient to throw very serious doubts on the correctness of the doctrine of acclimatization, in so far as they show that the faculty of withstanding sickliness and mortality was very much diminished after the second and third years of residence. It therefore came to be matter of inquiry, whether, in the cases in which large mortality took place during the first year of service in the island, that arose from the accidental coincidence of an epidemic season, or was the result of the alleged want of habituation to the climate. To determine this point, the reporters take a view of the mortality among the several corps distributed throughout the island during each year between 1828 and 1836 inclusive, during which period no serious or extraordinary epidemic sickliness prevailed.

The following table exhibits a view of the strength and deaths of eight regiments during each year of their service in the island.

Year of Service		8th Foot.	22d Foot.	33d Foot.	37th Foot.	56th Foot.	64th Foot.	77th Foot.	84th Foot.	91st Foot.	Total of all Corps.
1st.	Strength	493	...	...	486	517	513	...	...	...	2,009
	Deaths	79	...	...	65	53	51	...	...	...	248
2d.	Strength	438	386	...	476	500	454	...	441	...	2,695
	Deaths	82	48	...	31	53	49	...	36	...	299
3d.	Strength	437	521	...	471	473	...	...	509	...	2,411
	Deaths	25	21	...	22	40	...	...	34	...	142
4th.	Strength	...	531	...	487	453	...	...	524	...	1,995
	Deaths	...	54	...	31	33	...	...	62	...	180
5th.	Strength	...	470	...	...	463	...	447	434	...	1,814
	Deaths	...	72	...	...	42	...	41	90	...	245
6th.	Strength	...	390	...	...	...	...	496	430	...	1,316
	Deaths	...	49	...	...	...	...	24	79	...	152
7th.	Strength	...	449	426	...	...	...	538	475	443	2,331
	Deaths	...	42	16	...	...	...	26	48	31	163
8th.	Strength	...	496	525	...	...	...	468	503	504	2,496
	Deaths	...	51	36	...	...	...	82	21	18	208
9th.	Strength	...	442	504	...	...	...	405	500	516	2,367
	Deaths	...	30	52	...	...	...	21	16	81	150
10th.	Strength	...	490	435	...	...	...	484	475	...	1,884
	Deaths	...	18	48	...	...	...	72	41	...	179

Results in Ratios per Thousand of Mean Strength.

1st Year ...	160	...	...	134	102	99	...	...	...	123
2d ,, ...	187	124	...	65	106	108	...	82	...	111
3d ,, ...	57	40	...	47	85	...	...	67	...	59
4th ,, ...	...	102	...	64	73	...	...	118	...	90
5th ,, ...	...	153	...	...	91	...	92	207	...	135
6th ,, ...	...	126	...	...	...	...	48	184	...	116
7th ,, ...	...	94	38	...	...	...	48	101	70	70
8th ,, ...	...	103	69	...	...	...	175	42	36	83
9th ,, ...	...	68	103	...	...	...	52	32	60	63
10th ,, ...	...	37	110	...	...	...	149	87	...	95
General Average of 9 Years ...										93

These documents, the reporters properly observe, clearly prove that the large mortality which appeared in the first year of service depended not so much on the want of habituation to the climate as on the concurrence of epidemic fever prevailing to a considerable extent during the years when the corps happened to arrive.

From all these facts the reporters deduce the following conclusions.

"1. That troops are likely to gain but little immunity from either disease or mortality by a prolonged residence in the West Indies. This is established by several instances of corps which have suffered to as great an extent during the latter years of their residence as during the earlier, particularly the 1st, 5th, 9th, 25th, 35th, 67th, 69th, 86th, and 93d, in the Windward and Leeward Command, as well as the 33d, 58th, 61st, and 91st, in the Jamaica Command.

"2. That soldiers are not in general liable to any greater mortality during their first year of service there than at any subsequent period. This is shown, not only by the instances referred to in the first part of this section, but also by the experience of 12 corps out of 21 in the Windward and Leeward Command, and that of the 56th, 58th, 61st, and 64th regiments in Jamaica, in all of which the mortality during the first year of residence was under the general average of the island.

"3. That when the circumstances attending the mortality in several of the corps during their first year of residence in Jamaica are minutely investigated, the facts apparently at variance with the above conclusions are sufficiently explained by the occurrence of four epidemics between 1819, and 1827, so that no corps could arrive without encountering their fatal effects within the first year or two of its residence there.

"4. That though in years of ordinary mortality corps long resident in the island suffer as much or even more than those recently arrived, yet during the ravages of epidemics there appears a partial exemption in favour of the former." P. 95.

V. and VI. The fifth section, on *the Mortality and Diseases of Officers serving in the West Indies*, we must pass over, that we may advert to the general deductions formed by the reporters. These it is perhaps best to give in the manner and language of the authors, who appear to have bestowed great pains in applying the facts disclosed by the inquiry, to the elucidation of the etiology of the endemic diseases most prevalent in the equinoctial regions.

"Though the minute train of investigation pursued in this Report has not enabled us to distinguish with certainty the essential causes of sickness and mortality among European troops and civil residents in the West Indies, and though perhaps these causes may remain for ever involved in obscurity, yet the numerical results at which we have arrived, seem sufficient to warrant the belief that many of the opinions hitherto entertained in regard to the nature and influence of these causes must have been adopted on very inadequate evidence; at least, they are by no means in accordance with many of the facts adduced in the course of the present inquiry, and to which we shall now briefly advert.

" It has been supposed by many that the diseases which prove so fatal to Europeans in these latitudes, especially fevers, are, if not a necessary, at least a very general consequence of continued exposure to a high temperature. The sufficiency of this, however, as a uniform cause of sickness and mortality, is contradicted by the fact, that these vary considerably in different stations, the mean temperature of which is nearly alike. The range of the thermometer, for instance, in Antigua and Barbadoes, is rather higher than in Dominica, Tobago, Jamaica, or the Bahamas; yet we find that the troops in the latter stations suffer nearly three times as much as those in the former. The preceding pages also afford several instances in which epidemic fever made its appearance, and raged with the utmost virulence during the winter months—a circumstance not likely to have taken place if that disease had originated in increased temperature. We may also state that the epidemic fevers which prevailed at Grenada in 1793, and at St Christopher's in 1812, two of the most fatal which ever appeared in the West Indies, commenced, the former in March, and the latter in February, and continued with unabated violence during the whole of the cold season.

" If elevated temperature was an essential cause of the mortality to which Europeans are liable in this climate, we might expect it in every year to produce similar effects; whereas, on the contrary, it appears, from the tabular statements in the preceding Report, that the mortality in one year is sometimes twenty times as high as in another, without any perceptible difference in the range of temperature. This fact has already attracted the notice of some medical authors, who, in treating of yellow fever, adduce instances of various epidemics both within and beyond the tropics, during which the temperature was not above the average, and was sometimes even a little below it, and inversely where the existence of a high temperature was not attended with the prevalence of fever. *

" In accounting for the unhealthiness of these colonies, great influence has been ascribed to excess of moisture, and the inference derives plausibility from various facts in the history of tropical fevers, especially their great prevalence along the sea coast, at the outlets of rivers, and in the vicinity of swampy level grounds. This hypothesis, however, seems at variance with the facts contained in the previous Report; for if the mortality of the troops depended materially on the influence of moisture, we might expect it to attain its maximum in those stations where the fall of rain was the greatest, whereas the average mortality of the troops in Jamaica is at least double that which prevails among those in British Guiana, though the quantity of rain which falls in that island is little more than half as great; and in the preceding pages there are adduced many instances in which epidemic fever has broken out, and raged with great violence, at a period when no rain had fallen for several months; nay, in some stations, a dry, in others a wet season, is

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* Craigie, Practice of Physic, pp. 224, 226, 227.

looked on as the most unhealthy—an anomaly not likely to occur if excess of moisture was uniformly an essential cause of insalubrity.

" It must also be remembered that this excess of moisture is not confined to the West Indies, but is a general characteristic of all tropical regions: and were it so productive of disease in the Western hemisphere, the same effect might be expected to ensue from it in the East; whereas, on the contrary, the Malabar Coast, which is deluged by rain for six months in the year, is generally one of the most healthy quarters in the Madras Presidency.

" That neither heat nor moisture can be the primary causes which influence the health of troops in the West Indies, is at once established by referring to the comparative view of the ratio of mortality in each year at every station, exhibited in Tables XXXIV. and LX., in which there are numerous instances of two adjacent islands, or even of two contiguous stations in the same island, being subject in an equal degree to the operation of these agencies, and yet while the one has been desolated by the ravages of fever, the other has been enjoying a degree of salubrity equal to that of Great Britain.

" Though heat and moisture are not the primary causes of fever, however, it is highly probable their operation tends in some measure to increase its intensity. The tables, illustrating the influence of the seasons on the health of the troops in each station, show that the greatest number of admissions into hospital and deaths has, on the average of a series of years (though not uniformly or equally in each year), taken place in those months when the greatest degree of heat was combined with the greatest moisture; and it may be observed as a striking exemplification of this fact, that as the sun proceeds northward in the ecliptic, carrying heat and moisture in his train, the period generally termed the unhealthy season, is later in the northern colonies than in those to the south.

" The unhealthy character of that period of the year in which the greatest degree of heat and moisture is combined, is not, however, confined to the West Indies, but extends also to the East, as well as over a large portion of the Northern temperate zone. In the Mediterranean stations particularly, the admissions into hospital and deaths among the troops average nearly twice as high between July and October as during any other months of the year. Even in Canada, the same peculiarity is observable, though not in so marked a degree; and conversely in stations southward of the equator, that period of the year, which on the north of the line is the most unhealthy, becomes in the south the most salubrious, in consequence of the seasons being reversed. The calculations on which these statements are founded, will be submitted in subsequent Reports. At present we merely advert to them in order to guard against the error of referring to the climate of the West Indies exclusively, phenomena which are common not only to other tropical regions, but also to those of the temperate zone.

" A knowledge of this fact at once overturns a plausible hypothesis which attributes the unhealthy character of the West Indies during what is termed the sickly season, viz. from July to October, to the want of the free ventilation afforded by the trade-winds during the rest of the year, but which at this period either cease altogether, or become very irregular. But though these two events, the failure of the trade-winds and the increase of sickness and mortality, take place at corresponding periods, the latter can never be regarded as a necessary consequence of the former, when we find that in other quarters of the globe, beyond the range of the trade-winds, that is, in countries north of the 30th and 32d degree N. L., and in which ventilation is quite as perfect at that period as at any other, the unhealthy nature of these months is marked as strongly as in the west Indies.

"This same fact strikes also at the root of another hypothesis, which attributes the sickly season in these regions to some morbific principle generated in the vast forests and savannahs of the South American continent, and wafted to these islands by the south-westerly winds which generally prevail during that period. Besides, were this hypothesis correct, we might expect that British Guiana would, from its proximity to this cause of disease, be most subject to its operation, and consequently the most unhealthy; and that the colonies further to the north, being least exposed to it, would enjoy the greatest degree of salubrity. The result of our investigations into the comparative mortality in each colony shows, however, that their relative salubrity is by no means affected by their proximity to or distance from that continent.

"Some, who are conscious of the difficulty of accounting for the unhealthy character of these colonies by the operation of general causes, endeavour to trace it to the influence of local circumstances, in particular to exhalations or emanations from the soil. To illustrate, therefore, the nature and extent of the operation of this alleged cause, we have stated, as accurately as our information will admit, the physical and geological characters of the soil in each island, and in the immediate vicinity of each station; and by comparing these with the mortality there, have ascertained that at many stations where the soil appears exactly the same, the rate of mortality is very different, and at others, where the soil is very different, the rate of mortality is much the same. It is also to be observed that, while the soil and its physical characters are the same in every year, the sickness and mortality are extremely variable, and only in certain seasons and years attain an extraordinary degree of intensity. It frequently happens, too, that a station which has been remarkable for its sickly character for one or two seasons, becomes, without any perceptible reason, just as remarkable for its salubrity, which could scarcely happen if the cause of that sickness and mortality existed in the soil, which was constantly there to produce it.

"The agency, real or supposed, of marshes is liable to a similar objection. That the vicinity of marshes, swamps, and lagoons, is generally subject to fevers, both of the intermittent and the remittent type, is a fact sufficiently established by multiplied experience, both in tropical countries and within the temperate zones. But that remittent or yellow fever may be generated where no such cause is in operation to produce it, and that consequently it is impossible to establish a necessary connexion between this cause and the appearance of that disease, is sufficiently established by the fact that the sickness and mortality in British Guiana and Honduras, where swamps and marshes most abound, are considerably less than at Up-Park Camp, and several of the other stations in Jamaica, remote from the operation of any such agencies.

" The same remark may be applied to excessive or rank vegetation, to the influence of which much of the sickness and mortality at some of the stations has been ascribed. To both of these causes, indeed, the remark already made regarding the influence of the soil, is strictly applicable. The marshy lands and the rank vegetation exist at many of the stations in every year, whereas the disease, which is represented to proceed from them, is only of occasional occurrence, and the foregoing Report shows that in some years the extent of mortality has been ten times as great as at others, when the degree of heat and moisture by which the marshy soils and vegetation are most likely to have been affected, have been much the same.

" The object of this Report is rather to point out effects than to speculate upon causes, especially where they are so much involved in doubt and obscurity. We have merely referred to these alleged sources of disease to show how much they are at variance with numerical results, and because so long as the causes which affect the health of troops in the West Indies, are held to be accounted for by theories founded on error, it is not to be expected that others will be started more consistent with truth.

" We are too sensible of the difficulty of the subject to venture on any theory of our own, which might on subsequent examination prove as futile as those which preceded it; but we merely wish to call the attention of such persons as may be disposed for further inquiry, to the circumstance that as yet no experiments have been made on the electrical condition of the atmosphere in the West Indies, during periods of epidemic, and as it is possible either an excess or deficiency of that powerful though unseen agent, may exercise an important influence on the vital functions, the subject seems worthy of attention. Heat and moisture are well known to be intimately connected with the developement of electrical phenomena, and its influence on vegetation has also recently been established by experiment; consequently if the prevalence of diseases could be satisfactorily traced to that source, the reason why heat, moisture and vegetation should have been mistaken as the causes, when acting only as auxiliaries, would be readily accounted for; and even should the results leave the cause of disease as undetermined as before, science will at least be benefited by the inquiry.

" A comparison of the relative mortality at each station, with its topographical peculiarities as detailed in the preceding portion of this Report, will afford much information in regard to the influence of different localities on the health of troops, The instances of Fort St George at Tobago, Morne Fortuné at St Lucia, and Morne Bruce at Dominica, demonstrate that mere elevation to the height of 600 or 700 feet, instead of securing a healthy position, seems rather to have the reverse tendency. The records of the mortality at Stoney Hill, too, show that an elevation even of 1360 feet is insufficient to secure an immunity from the remittent fever of Jamaica ; but the details we have supplied in regard to the troops at Maroon Town, and some of the smaller outposts, demonstrate beyond a doubt, that, at an elevation of from 2000 to 2500 feet, they are likely to be either wholly exempt from that disease, or to encounter it in so very modified a form, that the mortality from all causes will not on the average of a series of years, materially exceed that to which an equal number of European troops would be subject in the capital of their native country. The diseases of the tropics seem, like the vegetable productions of the same regions, to be restricted to certain altitudes and particular degrees of temperature. The researches of Humboldt on this subject have tended to establish the fact, that yellow fever is never known beyond the height of 2500 feet, so that the nearer this boundary can be approached the more likely is the health of the troops to be secured.

" Where sufficient elevations cannot be obtained, the localities which appear least subject to yellow fever, are low sandy tongues of land or peninsulas jutting into the sea, and not shut in by any high ground immediately in rear, similar to those on which the barracks at Fort Augusta and Lucea are built, and where the troops have generally been more exempt from the epidemics of Jamaica, than at any of the other stations except those in the mountains. It cannot be affirmed that these will prove, like Maroon Town, uniformly healthy, but there seems good reason to suppose that on the average of a long series of years the mortality there will be considerably below the average.

" The superior salubrity of the Windward over the Leeward side of the West India islands has been supposed to afford a ready means of obtaining better localities for the troops. But though the Windward side may, from its free exposure, be cooler and more pleasant, we are by no means certain it will possess such decided advantages in salubrity. That is a point which yet requires confirmation by numerical results, and we have had sufficient experience in the course of this investigation to put us on our guard against drawing deductions as to the salubrity of stations from any other source. So far as we can learn, however, there are many instances in which epidemic fever has been found to prevail to a very great extent on the Windward as well as the Leeward side of the islands, but as the white population is less dense in the former, the deaths not being numerically so high have attracted less attention, and we conceive it possible this circumstance may have given to the Windward side a higher character for salubrity than it really merits. In Jamaica, the only island in which we have been able to establish the rate of mortality in different directions along the coast, no such superiority in the salubrity of one side as compared with the other has been observed.

" Except so far as regards elevation, therefore, it must be admitted that it is exceedingly difficult, if not impossible, to point out any practical rule to be followed in the choice of healthy localities for the troops. The example of Up-Park Camp is sufficient to show that even a position apparently remote from the noxious agencies of swamps and vegetation, with a free exposure, dry soil, and superiority of comfort and accommodation, may, without any assignable cause, prove uniformly unhealthy. It is probable the progress of our investigation into the influence of different localities on the health of troops in other quarters of the globe may open up fresh sources of information on this interesting and important subject, and enable us to appreciate with more accuracy the agencies by which so much sickness and mortality have been occasioned. We shall therefore defer any further observations till we have an opportunity of submitting the other Reports now in course of preparation." Pp. 101-103.

These deductions, perhaps, some will regard as not remarkable for novelty or originality. They are, however, valuable in eradicating various errors, and clearing the ground, as it were, for the construction of a more substantial theory than any yet adduced. For several of the deductions, and especially those relating to the doubtful influence of high temperature, the frequent and unaccountable inconveniences of very marshy situations, and the superior salubrity of all situations elevated from 1500 to 2000 feet above the level of the sea, we were perfectly prepared. Though the information communicated in this manner is often unavoidably negative, it is always useful in guiding the medical officer in choosing the least injurious, and, if possible, the most healthy, situation for the men under his charge.

Though the authors have not entered, in the present report, on the consideration of any practical rules for the preservation of the health of the troops, and guarding against the approach of disease, yet it is not difficult to perceive, in the general deductions now quoted, the principles of several important conditions, which ought to be observed in the distribution and arrangement of the forces, deemed necessary for protecting the colonies, either from foreign aggression or internal insurrection. To a few of these it may not be unseasonable briefly to advert.

1. In the *first* place, it would be desirable to employ in our West India possessions, to as great an extent as may be compatible with the security of the islands and the safety of the white population, black forces. It appears that though these suffer as well as the white, yet they do so in a degree so much less, that no doubt can be entertained as to the saving of the lives of the white soldiers by this expedient.

2. In the *second* place, as it is impossible entirely to dispense with the use of white or European soldiers, it should be the study of the authorities to send them thither in such months as may be most healthy, February, March, April, and May.

3. *Thirdly*, the troops should always be quartered in situations which have been shown by long experience to be healthy; and it

appears that in general this is most certainly attained by chusing a certain elevation above the level of the sea. Such situations as Up-Park Camp, Port Antonio, Spanish Town, and Montego Bay, ought to be entirely abandoned as residences for troops; and sufficient accommodation should be provided at Maroon Town, and places similarly situated. A great saving could thus be effected to the country, while the object of garrisoning and protecting the colony would be more certainly attained.

4. It is further of paramount importance to have the barracks well constructed, with sufficiently large and commodious apartments, with every means of insuring cleanliness, both domestic and personal, and to see that they be always kept in complete repair.

5. The diet requires to be regulated with much care and precision. There is strong reason to believe that salt provisions are injurious in several modes,—manifestly in three. They contain less nutritious matter than the same quantity of fresh provisions. They are liable to irritate the mucous membrane of the alimentary canal. They cause the soldier or seaman to drink; and drinking in the West Indies always implies the daily use of a large quantity of rum and water, which, instead of quenching thirst and assuaging heat, invariably increases both.

6. Every means ought to be taken to diminish with the European soldier the intemperate use of spirits, and the inducements to drinking. We are satisfied, that, if these pernicious stimulants were abandoned entirely, the soldier would be more capable of performing his duty, and would be not less able to resent the deleterious influence of the climate. It is doubtless true that the present report shows that the sober and the intemperate are nearly in equal proportions attacked and destroyed by the diseases of the climate; and the sickness and mortality do not bear any proportion to the temperance or intemperance of the sufferers; and it is also true, that the diseases most fatal to the troops cannot be traced to the use of spirituous liquors. But it must also be allowed, that while the brain-fever, which is the direct effect of the excessive use of these liquors, is very frequent in the West Indies and in Jamaica, is attended with great mortality, it is not very likely that the habitual, though not intemperate, use of these liquors is to be entirely harmless or inert in the predisposition to disease. Until, therefore, this pernicious abuse is altogether stopped, it is not likely that any great amelioration in the health or social condition of the soldier can be expected to take place.

It is proper to say, however, that Sir Harry Hardinge has the merit of having abolished the spirit rations.

7. It would be desirable to improve the condition of the soldier as to education, and to give him such mental occupation as would render him less likely, in the hours of relaxation in warm climates, to fly to the temporary and hurtful excitement produced by drinking. Several corps now possess regimental libraries; and

if the men were always sufficiently educated to avail themselves of this form of recreation, the hurtful one of drinking might be gradually and completely abolished.

8. A last method of diminishing mortality in the West Indies is strongly and clearly suggested by the facts detailed, illustrating the detrimental consequences of long residence, and the fallacy of all idea of what has been termed acclimatization. As it appears that the health of troops continues every year to be deteriorated, and as no length of residence either increases or secures immunity from the diseases of the climate, an obvious conclusion is, that the duration of service in the West Indies should be abridged, and that reliefs should be more frequent. The usual period of service in the West Indies at present is eleven years; and with the present rate of mortality, at least four-fifths of every corps, sometimes more, must unavoidably be destroyed in that time. The mortality in these climates is indeed about the same as in four such actions as the battle of Waterloo, in which it is calculated that 1 in 30 of the combatants perished. If, therefore, the waste of human life be so excessive, and if, instead of being diminished, this waste is increased by lengthened residence, it is quite clear that one of the most effectual modes of diminishing this evil, (for prevented it cannot altogether be,) is to abridge the period of service, and to furnish more frequent reliefs.

We cannot close these observations without saying a few words on the useful and important service which Mr Marshall and Captain Tulloch have rendered to the cause of exact medical knowledge, and the great obligation under which they have laid the profession by the publication of the present Report.

Dr John Hunter, in his instructive work on the Diseases of the Army in Jamaica, made in 1788 the following remarks.

"A book was kept in every hospital, in which was entered the name of each patient, his age, the time of his admission, the disease under which he laboured, and the medicines which were daily given to him. This was found equally useful and convenient to the surgeons, and to the physician or inspector of the hospitals; and from this book a weekly return was made of the sick admitted, discharged, and remaining in the hospital."

"I cannot help suggesting that an hospital-book or register, kept in the manner recommended in each regiment, and on board every ship of war, would afford the best proof of the diligence and abilities of the surgeons; and, if annually transmitted to those, to whose superintendence the care of the health of the navy and army is committed, would have the good effect of making industry and abilities known at the greatest distance. A plan of this kind might greatly contribute to improve our knowledge of diseases in all the various climates to which the possessions of the British Empire extend; and by enabling us to take better care of the health of our seamen and soldiers, prove a national benefit."

The plan here originally suggested fifty years ago by Dr John Hunter, has now, by the united exertions of the Director-General, and Mr Marshall and Captain Tulloch, been in a great measure carried into effect. By the wisdom and foresight of Sir James Macgrigor in organizing a system of periodical reporting, the necessary materials were collected for a space of more than twenty years; and, by the persevering industry and methodical talents of the two latter gentlemen, these have been converted into the only form in which such collections can be really beneficial. It is only by familiar knowledge of the immense mass of materials accumulated under such circumstances, that the diligence and industry of those who examined, arranged, and condensed them can be truly estimated. Where ordinary application would have been dismayed with the number and magnitude of the documents, and perplexed with the multiplicity and complication of the details, the authors of the present Report have proceeded with unremitting zeal, and the most untiring diligence in arranging and condensing materials, in calculating long numerical proportions, and in comparing and presenting the results in intelligible forms.

ART. II.—*Isis Revelata: An Inquiry into the Origin, Progress, and present state of Animal Magnetism.* By J. C. COLQUHOUN, Esq. Advocate, F. R. S. E. 2 vols. small 8vo. Edinburgh, 1836. Pp. lii. xii. and 810.

2. *Hints on Animal Magnetism, addressed to the Medical Profession in Great Britain.* By J. C. COLQUHOUN, Esq. Advocate, author of Isis Revelata, &c. 8vo. Edinburgh, 1838. Pp. 48.

3. *Animal Magnetism and Homœopathy.* By EDWIN LEE, M. R. C. S. &c. 2d edition, considerably enlarged; with notes illustrative of the influence of the Mind on the Body. 12mo. London, 1838. Pp. 98.

4. *An Introduction to the Study of Animal Magnetism.* By the Baron DUPOTET de Sennevoy.* With an Appendix containing Reports of British Practitioners in favour of the science. 12mo. London, 1838. Pp. xi. and 388.

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* "It is not unusual for persons who are liable to be confounded with others of the same name, to subjoin by way of distinction, that of their native town or village, as Beclard (d'Angers.) M. Dupotet's name is by no means a common one, and, therefore, any such distinction is needless, unless, knowing the importance attached by the English to high sounding names be preferred, on arriving in London, instead of announcing himself as M. Dupotet from Sennevoy, the more aristocratic appellation of the Baron Dupotet de Sennevoy."—Lee, p. 14.

In the fortieth volume of this Journal, a comprehensive analysis was given of Mr Colquhoun's first work on Animal Magnetism. It is now our intention to discuss the subject as fully as our limits will permit, with the view of ascertaining on what foundation the various statements concerning the phenomena asserted to be the effects of this assumed agency rest, and the truth of the doctrines deduced from them. In executing the task which we have imposed upon ourselves, we have rigorously examined the evidence adduced by the partisans of this supposed discovery, and, in forming our opinions, we can assure our readers that we have been uninfluenced by any other motive than a sincere desire to discover the truth.

The expression Animal Magnetism is used to designate a peculiar influence which is supposed to be exerted by certain individuals over animate and inanimate objects. The former are generally delicate nervous individuals, women, youths, or children, though some of the lower animals are reported to have been similarly affected. The latter, if we may trust the supporters of the doctrine, are temporary depositaries of the agent through which the influence is supposed to be exercised.

We shall not trouble our readers with an account of those superstitious and mystical practices, which, from a very remote period, have been employed in the treatment of diseases, or for purposes less praiseworthy, because, even though it could be shown that such processes were occasionally successful, they would afford no corroboration of the statements and views of the magnetists of the present day, inasmuch as the same plans were not followed, and the effects might be more rationally attributed to friction, heat, moisture, and the influence of the mind on the body. Referring, therefore, those who are interested in such investigations to the ingenious work of Mr Colquhoun, we shall now briefly trace the history of animal magnetism from the time of Mesmer to the present day.

During the sixteenth, seventeenth, and eighteenth centuries, the magnet was employed as a therapeutic agent in various diseases, and many wonderful cures were attributed to it. About the year 1773, Father Kell, the astronomer, whose attention had been devoted to the subject, imagined that he had cured himself of rheumatism, and a lady of chronic cardialgia, by the use of magnets. Mesmer, to whom he related his supposed successes, saw in them a strong corroboration of the views which he had promulgated eight years before in his thesis "On the influence of the planets on the human body." Accordingly, he repeated the experiments, and, being satisfied with the results, published them in 1775 in a "Letter to a Foreign Physician on the Magnetic Remedy."

This involved him in a dispute with Father Kell, who charged him with borrowing or rather stealing his discovery. In the same year he published a second letter to the public. Meeting with much opposition and even persecution in Vienna, in this and the following year, he travelled in Bavaria and Switzerland, where he is said to have performed many cures both publicly and privately.

At this period a pretended exorcist of the name of Gassner resided at Ratisbon, to whom Mesmer paid a visit. John Joseph Gassner was an ecclesiastic, who, though perhaps perfectly honest, was possessed of great zeal and a vivid imagination. His constitution was feeble, and he was subject to affections of the head. These, he became convinced, were occasioned by demoniacal agency, which could be repelled only by the name of Jesus. In his own case his efforts having had the desired effect, he forthwith proceeded to treat the diseases of his parishioners, and in 1774 published his work "*Manière de vivre pieux et bien portant.*" In this book he divided the different kinds of demoniacal actions into *possessions*, *obsessions* and *circumsessions.* To ascertain whether a disease was the result of natural causes, or of the agency of Satan, Gassner conjured the evil spirit to declare himself, and, if after three appeals and three signs of the cross, no answer was given, he considered the malady natural, and to be cured by the usual means. If, on the contrary, the demon answered, and the body of the patient was convulsed, Gassner rubbing his hands on his girdle, taking his stole and cross, invoking the names of Jesus Christ, and touching and pressing different parts of the body, often, as was said, indecently in the case of women, endeavoured to dispel the disease. Great success attended his efforts, and though, when he presented himself to the Bishop of Mersburg, he was dismissed as an impostor, the Bishop of Ratisbon invited him to Elwangen, where he continued his practices. When patients relapsed, he accused them of having committed some new sin or of want of faith, and gave them some formulæ for exorcising the demon. The celebrated Lavater, with his usual love of mysticism, became the enthusiastic supporter of Gassner, and believed him to have obtained supernatural power, in consequence of the strength of his faith.

Gassner was not the only enthusiast or mystic of that time. De Haen, physician to the court of Vienna, published a work on magic, in which he has acknowledged the influence of the devil on the human body, and Professor Krause of Leipsic was distinguished for his mysticism and absurdity. Mesmer declared the cures of Father Gassner to be effected by animal magnetism.

In the early part of his career, Mesmer, both in Vienna and elsewhere, availed himself of artificial magnets in his practice. These, however, he soon laid aside, and trusted to certain manœuvres for producing the requisite effects. In what manner he was led to make this change, it is not easy to say. According to Ennemoser, " Mesmer was led to the discovery of animal magnetism by the following circumstance. Being present on one occasion when blood was drawn, he found a remarkable difference in the flowing of the blood when he approached or retired. Having afterwards repeated the experiment, the same phenomenon was manifested. Hence he was induced to conclude that his person was endowed with this magnetic influence, which may have been stronger in him than in other men, as different pieces of iron or steel may possess different degrees of magnetic power." (Isis Revelata, Vol. i. p. 217.) M. Colquhoun admits that this account of the matter is not to be found in any of Mesmer's writings, and, in our opinion, if it were correct, it is hardly possible that he should have omitted so natural an explanation. According to his pupil and steady partisan, Grandchamp, Mesmer received the first hint of his system, from remarking that when any of his servants or friends stood behind him, he was made aware of his presence by a peculiar sensation, by which, without seeing him, he was able to tell his name. Another, and what may appear to many a more probable explanation, is, that when Father Kell accused him of stealing his discovery, it became necessary, for the purpose of giving an air of originality, to vary the process by discarding magnets. Be this as it may, he no longer talked of *mineral*, but of *animal* magnetism.

On his return to Vienna, Mesmer conducted himself with so much mysticism, as to disgust several who had been his partisans; and most men were convinced that, if he were not an impostor, he was a self-deceiving enthusiast. Among the many cures which at this period he pretended to have made, was the restoring sight to a blind girl. This was disputed by the oculist Barth, who asserted that the girl was not blind, and the Empress sent an order to Mesmer to put an end to his imposture. Accordingly, he left Vienna in 1777, and appeared at Paris in February 1778. This city was then as it is now, exactly the place suited for the promulgation of any wonderful doctrine or startling discovery, and although his reception by the members of the medical profession was cold, contemptuous, and discouraging, he was abundantly recompensed by the interest which many of the gay and fashionable residents in the capital took in his views, and by making a convert of Dr D'Eslon, first physician to the Count D'Artois. Encouraged by him, Mesmer published in 1779 his *Memoire sur la découverte du Magnétisme Animal*, " which, besides an apology for his conduct in Vienna, contained a concentrated view of his system in twenty-seven propositions," Mr Colquhoun's abstract of which will be found at the 143d page of the 40th volume of this Journal.

At this period the Royal Academy of Medicine proceeded, in a very summary and absurd manner, not only to repudiate the doctrines which they were perfectly justified in doing, but to suspend M. D'Eslon from his privileges as a member, and threaten him and all others who embraced the new faith with expulsion if they persisted. Not content with this they exacted an oath from their members, that they should never believe in magnetism or practise it. The consequence of this might have been easily foreseen. Hundreds of controversial pamphlets appeared, many lawyers condemned the decree, and Mesmer and D'Eslon appeared as sufferers for conscience. This has afforded the animal magnetists of the present day a fruitful theme for declamation, and it will appear to many that they consider the condemnation of the Royal Academy of Medicine to be an evidence of the truth of their doctrines. The Academy undoubtedly acted in a decided manner; but their being wrong in the mode of expressing their disapprobation does not prove that it was not well founded.

In the meantime the house of Mesmer was crowded with devotees, and it is said that the voluptuaries of the day of both sexes repaired to him, for the purpose of indulging in that feeling of awe and repose, which his mode of operating was so well calculated to inspire.

We shall not detain our readers with an account of Mesmer's mode of proceeding, because it has been briefly indicated in the article above referred to, and has been detailed again and again in the works on the subject, and in many popular publications of the day.

In 1784, M. Thouret published "*Recherches et doutes sur le Magnetisme Animal*," a work characterized by great variety, extent, and accuracy of information. Twelve objections were made by him to Mesmer's doctrines.

1. That touch, as employed by Mesmer, on parts endowed with great sensibility, as the stomach, may be productive of certain effects by communicating a lively impulse to the plexus of nerves there situated, which are connected with the other nerves of the body; that many such facts have been reported, and that, consequently, the sensations to which such touchings (*attouchemens*) give rise, do not prove the existence of a peculiar agent or fluid.

2. That the heat produced by the hand, and the motion communicated to the air, may give rise to strong impressions on individuals possessed of great sensibility, and whose fibres are convulsed, without these effects proving the existence of a new agent.

3. That, by engaging the imagination by an imposing apparatus and extraordinary process, by the confidence produced by great promises and enthusiasm, it is possible to increase the tone of the sensible and nervous fibres, then to direct by touchings their impulse to certain organs, and thus excite in them evacuations

or excretions, without there being an accession to physical or medical knowledge.

4. That the presence of a person already in convulsions or ready to fall into them, may be reckoned among the disposing causes; that as the spasm of one organ is easily communicated to others, and may be transmitted from one individual to another, it is not at all wonderful that in apartments where the pretended magnetic treatment is pursued, spasms and convulsions should spread so rapidly, the means of producing them being so easy; that history furnishes us with many facts of convulsive diseases spreading over a whole village, and even over a whole town, in a manner still more surprising than that of which animal magnetism furnishes instances.

5. That the partisans of animal magnetism produce what they call crises, that is a state of convulsion, only in very irritable and nervous subjects, and especially women, whose sensibility has been previously excited by the means already alluded to.

6. That there are many instances on record of cures produced by fear, joy, or any violent emotion, which only prove the power of nervous influence over disease.

7. That at different epochs two famous empirics, Greatrakes and Gassner, produced in different individuals effects which appeared surprising; that they employed merely touchings; and that it was universally allowed that they operated through the imagination.

8. That in many instances animal magnetists appear more anxious to surprise the spectators than to cure the diseased; that the spasms and convulsions which they induce are productive of positive mischief, were it only by the habit which they entail.

9. That many local diseases, not being in the number of those on which animal magnetism acts, and certain individuals not being under its influence, according to the opinion of Mesmer himself, there is good ground for suspecting that the partisans of the doctrine have availed themselves of this resource to explain their failures.

10. That to pretend that a plan has been discovered which will cure all forms of disease is an absurdity inexcusable in an enlightened age.

11. That all the phenomena produced by Mesmer by means which he has not published, may be explained by the known effects of sensibility, without having recourse to any new agency.

12. That Mesmer, even supposing that he was possessed of a peculiar agent, has followed a course opposed to the interests of his discovery, by acting like those who have made vain efforts to gain credit for a system in all respects worthy of the oblivion into which it has fallen.

The same year, MM. Poissonnier, Mauduyt, Caille, and Andry, commissioners of the Royal Society of Medicine, named by the

King to examine the pretensions of the magnetists, gave in their report, which was read on the 24th August. The following are their conclusions, which are more unfavourable, if possible, than those of Thouret.

1. That the pretended animal magnetism is an old system which was extolled in the preceding age, and fell into oblivion.

2. That the partisans of animal magnetism have neither at this nor any other time, furnished any proof of the existence of the unknown agent or fluid to which they have attributed certain properties and effects, and that, consequently, the existence of this agent is gratuitously supposed.

3. That this pretended means of cure, reduced to irritation of sensible regions, to irritation, and the effects of imagination, is at least useless in those cases in which neither evacuations nor convulsions occur; and that it may often become dangerous to patients of great nervous susceptibility, by its carrying the tension of the fibres too far.

4. That it is most injurious to individuals in whom it produces those effects which have been improperly termed *crises*; that the stronger these pretended *crises* are, the more violent the convulsions; that the more abundant the evacuations, the more dangerous it is; and that there are many constitutions and dispositions on which its effects may be fatal.

5. That the public treatment of patients by animal magnetism, in addition to the bad effects already mentioned, exposes individuals of a good constitution to the danger of contracting spasmodic and convulsive habits, which may produce the greatest evils.

In consequence of this report, the society called upon the government to suppress animal magnetism as a nuisance.

On the 4th of September of the same year, the report of Bailly, Franklin, Le Roy, De Bory, and Lavoisier, was read to the Royal Academy. For the conclusions drawn by these eminent men, we refer the reader to the 40th volume of this Journal.

Against these reports the partisans of animal magnetism loudly exclaimed, and though most of the scientific men of Europe acquiesced in the conclusions of the reporters, and the subject lost most of its attraction, a few individuals endeavoured to support its doctrines. But they were scarcely heard of beyond the circle of their friends and dependents, notwithstanding that, from time to time, they solicited the attention of the public by various publications. In the meantime animal magnetists divided themselves into three sects, of which M. Dupotet gives the following brief account.

" 1st, The original school of Mesmer. This prevailed principally in Paris. Its doctrines were very similar to those of the Epicurean philosophy, as described in the poem of Lucretius. Its disciples believed in the existence of a universal fluid, and conducted the operation physically; that is, by passing the hands immediately over, or at a short distance from, the body of the patient. 2d, The school of the Chevalier de Barbarin. This was founded at Lyons, and though it had many partisans in France, prevailed principally in Sweden and Germany. Its principles remind us of the Platonic philosophy; its disciples maintained, that the magnetic operation depended entirely 'on a pure effort of the soul,' and was to be conducted only on psychical principles. They were, therefore, termed spiritualists. Lastly, the school of the Marquis de Puységur, founded at Strasbourg, the disciples of which, professing to be guided only by observation, called themselves experimentalists. The characteristic feature of this school is, that it combines the physical treatment of the school of Mesmer, with the psychical treatment of that of Barbarin."—Dupotet, pp. 17, 18.

The first systematic work on animal magnetism was published by Deleuze in 1813, under the title of *Histoire Critique du Magnetisme Animal*, and appears to have led to the reconsideration of the subject. Many men of scientific eminence expressed themselves in its favour; and although M. Virey, in his article on Animal Magnetism in the Dictionnaire des Sciences Medicales, minutely examined its history and proofs, and gave what many consider a complete refutation, the contagion of the new doctrine spread, till in 1826 the Academy decided by a majority of ten, on appointing a new commission. During the five years which elapsed between the appointment of this commission and the reading of its report, several treatises were published and experiments made. When the report was read, a scene ensued which we trust will never again be exhibited by any body of scientific men. We transcribe as a curiosity, the following account of it given by M. Dupotet.

"The hall in which the Academy assembled, so empty on ordinary occasions, was that day crowded: even the passages were obstructed by the curious. It might have been supposed that one of those decrees on which the weal or woe of a nation depends was in agitation. All the members of the Academy, even those enfeebled by age, were at their posts. The meeting was then opened, and M. Husson, the reporter of the committee, then appeared at the bar with a voluminous roll of paper in his hand. He spoke in a grave and somewhat measured tone, and began by reviewing the events which had preceded the nomination of the commission; he then invoked the memory of the ancient friendship borne by the elder practitioners present to its members;—he at length came to the point, and related, first, all that had appeared doubtful to the commissioners; then he cited the facts which could be explained by causes foreign to magnetism; and lastly, the positive facts, which could only be referred to magnetism itself. But as the forms of oratory and the cases already cited had absorbed much time, the conclusion of the report was deferred till next meeting.

“This was the day of the grand battle;—I say battle, for on this occasion there was a general affray among the members of the Academy. While the report was being read, they listened with uneasiness to the facts detailed, but when the higher phenomena of lucidity were described a general murmur, not very flattering to the commissioners, prevailed, which gradually increased, until several academicians started from their seats and apostrophized, in unmeasured terms of indignation and contumely, the men who had conscientiously related the facts which they had seen and attested. An outcry was raised on all sides against the commissioners; but without being disconcerted, many members of the Academy, who believed in magnetism, because they had themselves examined it, vindicated them, and retorted:—‘You do not believe in magnetism—be it so; but in this very place the circulation of the blood was denied; yet the blood does circulate! Here they who practised inoculation were denounced as impostors, and the inoculated as dupes and idiots; yet was inoculation no imposition or idiocy; here, also, the physicians who first employed tartar emetic were put on their trial and expelled the academy, yet we have now for colleagues men who employ it in enormous doses!’ Another exclaimed with stentorian voice, ‘This institution ridiculed those who affirmed they had seen stones fall from the sky; yet meteoric stones do fall!’ Thus the sanctuary of science was on a sudden converted into an arena of Babel-like confusion, because a few of the learned members of the academy were not prepared to accredit the facts which the commissioners whom they had themselves delegated with the inquiry, reported to them.”—Pp. 24, 26.

The details of this report have already been given in the volume of this Journal before referred to. But as many seem to imagine the conclusions of the commissioners irrefragable, we shall place in juxtaposition with them those given by M. Dubois in his critical exposition, as quoted by Mr Lee.

Conclusions of the Report.	*Rational Conclusions.*
1. “ Contact of thumbs and movements termed *passes* are the means of relationship employed to transmit magnetic action from the magnetiser to the magnetised.	“ The *passes* are means employed to transmit a pretended action to the magnetised.
2. “ Magnetism acts in persons of different age and sex.	2. “ Magnetism does not act on any person whatever by the age or sex.
3. “ Many effects appear to depend on magnetism alone, and are not reproduced without it.	3. “ We have not seen any effects that could be attributed to magnetism; the phenomena observed depend on other causes.
4. “ The effects produced by magnetism are varied; it agitates some, calms others; it generally causes acceleration of the pulse and respiration, slight convulsive movements, somnolency, and in a few cases, what is called somnambulism.	4. “ There is no proof that the agitation or calmness of the individuals, any more than the other circumstances, are produced by magnetism.

5. " The existence of peculiar characters, proper to recognize in all cases the reality of a state of somnambulism, has not been proved.	5. " Ditto, Ditto.
6. " It may, however, be inferred with certainty, that this state exists. when it gives rise to the developement of new faculties, as *clairvoyance*, and intuitive foresight; or when it produces great changes in the physiological condition of the individual, as insensibility, sudden increase of strength; as this effect cannot be attributed to any other cause.	6. " It has been impossible for us to come to the conclusion that this state was real; even when it gave rise to the above-mentioned phenomena, and produced insensibility and other physiological changes, inasmuch as these effects may be referred to other causes.
7. " When the effects of Magnetism have been produced, there is no occasion on subsequent trials to have recourse to the *passes*. The look of the magnetiser, his will alone have the same influence.	7. " It has not been demonstrated that passes have really produced any phenomena, still less that the look and will of the magnetiser has had this influence.
8. " Changes more or less remarkable are effected in the perceptions and faculties of persons on whom somnambulism has been induced.	8. " These changes in the perceptions and faculties, which appeared to be effected on somnambulists, may be referred to other causes than magnetism.
9. " We have seen two somnambulists distinguish with closed eyes objects placed before them. They have read words, estimated the difference of colours. the prints on cards, &c.	9. " We have seen two somnambulists capable, it was said, of reading, &c. with closed eyes; but it has not been proved to our satisfaction that the edges of the eyelids were at all times in immediate contact.
10. " In two somnambulists we have met with the faculty of foreseeing acts of the organism to take place at periods more or less distinct. One announced the day, hour, and minute of the invasion and recurrence of an epileptic attack; the other foresaw the period of his cure. Their anticipations were realized.	10. " We have seen two somnambulists capable, as it was said, of foreseeing acts of the organism; but one predicted attacks of a disease that may be simulated; the other announced the period of his cure, when already in full convalescence.
11. " We have only seen in one instance, a somnambulist who has described the symptoms of the diseases in three individuals presented to her.	11. " We have seen a somnambulist endowed, it was said, with the faculty of ascertaining the disease under which persons presented to her laboured; but in the first case she only mentioned insignificant symptoms: in the other two cases all the circumstances show that she had received her information beforehand.
" 12. In order to establish justly the relations of magnetism with therapeutics, we must have observed the effect on a number of individuals, and have made many experiments on such persons. This not having been done, the commissioners only say that they have seen too few cases to enable them to give a decisive opinion.	12. " There are no relations to be established between magnetism and therapeutics, because the pretended magnetic effects have been absolutely null; and it is not from the small number of cases, but on account of their nullity, that the commissioners cannot determine.
13. " Considered as an agent of physiological phenomena or of therapeutics, magnetism should find a place in the circle of medical science, and consequently should be either practised, or its employment superintended by a physician.	13. " Magnetism cannot be considered as an agent of physiological phenomena, still less as a therapeutic measure; it consequently ought not to have a place in the circle of medical knowledge. and, far from recommending its employment, physicians ought to op-

	pose themselves to the charlatanism which seeks to spread it abroad.
14. " The commission could not verify, because it had not opportunities, the existence of any other faculties in somnambulists ; but it communicates, in its report, facts sufficiently important to show, that, in its opinion, the academy ought to encourage researches on animal magnetism as a curious branch of psychology and natural history."	14. " The commission could not perceive, because it had no opportunity, so many other faculties said to exist in somnambulists ; but it communicates facts important enough to determine the academy to abstain from encouraging researches on magnetism, as it could not constitute, as some believe, a curious branch of psychology and natural history."—Pp. 20–24.

Upwards of twelve months ago the subject was again brought under the notice of the academy, in consequence of a Dr Berna, who had been delivering lectures on animal magnetism, offering to convince the members of its powers by their personal experience. A commission was appointed, consisting of Roux, Bouillaud, Cloquet, Emery, Pelletier, Caventou, Cornac, Oudet, and Dubois (d'Amiens,) and though both partisans and opponents were thus associated, the report was unanimously agreed to. On the score, therefore, of fairness, no objection can with propriety be made. We shall state briefly the substance of this document.

The commissioners met for the first time on the 27th of February 1837, at M. Berna's house ; and after some discussion it was agreed, " that the experiments should take place at M. Roux's house, and that no strangers except the persons who were to be subjects of experiment were to be admitted into the room." On the 3d of March all the commissioners except M. Oudet met at seven in the evening ; and in three-quarters of an hour M. Berna introduced to them a young girl of seventeen or eighteen, " of a constitution apparently nervous and delicate, but with an air sufficiently cool and resolute." The experiments fixed upon were, 1. somnambulism ; 2. proof of insensibility to pricking and tickling ; 3. restitution, by mental will, of the sensibility ; 4. obedience to the mental order to lose the power of motion ; 5. obedience to the mental order to cease answering in the midst of a conversation ; 6. repetition of the same experiment, the magnetiser being separated from the somnambulist by a door ; 7. awaking ; 8. according to the mental order, which shall be enjoined in the somnambulic state, persistence in the restoration of the sensibility, and also persistence in the power of losing or recovering this sensibility at the will of the magnetiser.

The girl was cautiously and affably received by the commissioners, who, before the experiments were made, introduced needles, brought by M. Berna, to the depth of about half a line into her hands and neck. She at first asserted that she felt no pain, but at last confessed that she did feel a very little. These preliminaries being completed, M. Berna made her sit closely by him, and then appeared to contemplate her in silence, without performing the *passes*. After a minute or two he declared her to be in a state of somnambulism. Her eyes were covered with cotton and a bandage. No proof was given that she was in a state of somnambulism. He then contemplated the girl at a short distance, and announced that she was struck with general insensibility. Of this insensibility the commissioners had no adequate proof, because the intensity of the pain to be inflicted was rigorously fixed by M. Berna; and it was impossible to ascertain whether even the modified attempts to inflict pain succeeded or not,—the half of the features being concealed by the bandage. When M. Dubois pricked her more forcibly under the chin than the rest, she instantly performed with vivacity the movement of deglutition. " M. Berna perceived it, and gave new cautions." When touched by M. Cloquet, she stated that she felt the impression. This, it will be observed, happened after M. Berna had declared that he had deprived her of all sensibility. M. Berna, however, proceeded to inform the commissioners, " that he was going, by the sole and tacit intervention of his will, to paralyze either from sensibility or motion any part of the girl's body that they would wish." Certain conditions were proposed to him, which were calculated to prevent collusion. These, however, he rejected. All the evidence which the commissioners were allowed to have of the existence of paralysis was, " that when told to raise her arm, &c. the somnambule did raise it or not: in the latter case—that is, if when told to do it, she did not raise her limbs, or move her head, or talk; it was to be considered that she was paralyzed by the tacit will of M. Berna, and that all this depended on the agency of animal magnetism." As if this were not enough, the commissioners were to be rapid in making their observations; and if the first trials did not succeed, they were to be repeated till paralysis was produced. To this, of course, the commissioners refused to agree; and M. Berna announced that he would do no more at this meeting except awaken the girl, and restore her sensibility. This he affected to do in the following manner:

" M. Bouillaud, at his invitation, was first to place himself behind the girl, ready to prick the back of her neck when the magnetiser gave him the signal. He, M. Berna, placed himself opposite the girl in the same position as the first time—Wake! said he twice. Then he raised the bandage and the cotton from her eyes, leaned towards her again, put his left arm behind her and stopped M. Bouillaud, who was of course going to prick her too soon; then leaning towards the girl, whose eyes were perfectly open, he looked at M. Bouillaud; that commissioner then pricked the somnambule, who turned her head aside, and M. Berna cried out, There! the sensibility is restored."

At the second and subsequent meetings the experiments completely failed; and at last, in consequence of being refused a copy of the notes, M. Berna refused to proceed. The following are the conclusions unanimously agreed to by the commissioners, as abridged by Mr Lee.

1st. "It results from all the facts witnessed that no proof has been afforded of the existence of a peculiar state termed magnetic somnambulism, and there is only the magnetiser's assertion to trust to, that the individuals were in this state at each meeting.

2d. "The second experiment was to determine the insensibility of the person subjected to the experiment. It was not allowed, however, to try this by pinching, pulling, the contact of a body in a state of ignition, or of an elevated temperature, but merely by pricking the skin with needles, introduced no deeper than half a line, which could only produce a very moderate degree of pain; and considering the face and eyes, where painful impressions are mostly shown, were covered, even perfect immobility could not be regarded as a proof of the abolition of sensibility.

3d. "The magnetiser was to prove that by the sole intervention of his will, he had the power of restoring sensibility to the somnambulist; but as he could not prove experimentally that this young girl had ever been deprived of sensibility, it would have been impossible for her to have proved its restoration. Besides all the trials made with respect to this part of the experiment failed.

4th. "The above remark will also apply to the pretended abolition and restoration of the power of motion, not the slightest proof of which was afforded. When the girl assured the commissioners that she could not move her leg, it was no proof to them that this limb was magnetically paralysed, and even then her assertions were not in accordance with the pretensions of the magnetiser.

5th. "Obedience to the will of the magnetiser was to be proved by the somnambulist ceasing to hold a conversation with a person indicated. Instead of this result being produced, quite the contrary effects were manifested; the somnambulist appeared to be deprived of hearing before the magnetiser wished it, and heard and answered questions, when he desired that she might not hear; so that according to the assertions of the somnambulist, the faculty of hearing or not hearing was completely in opposition to the will of the magnetiser. The commissioners, however, did not see, in the circumstances, an opposition any more than a submission to the will of the magnetiser, but only a natural and complete independence of it.

6th. "The proving the transposition of sight failed entirely. The only things correctly stated by the somnambulist were what she might naturally infer from the circumstances; as hearing the magnetiser request a person to take a card and write upon it, she professed to be able so see the card and writing, but was quite wrong when interrogated respecting the word written; and from the circumstance of her guessing that the commissioner whom she knew, had been writing and had ceased to write, held his pen in his mouth

when she was asked if she saw his mouth, the commissioners could only conclude that this somnambulist was more acute than the preceding one, and was able to draw probable conclusions.

7th. **" To prove *clairvoyance.* The circumstances which occurred carry with them their own inference, viz. that the faculty of seeing through a bandage objects presented to the somnambulist cannot be caused by the magnetiser. But here a serious reflection presents itself. Even in admitting for a moment the hypothesis, very convenient for the magnetisers, that, under many circumstances, the best somnambulists may lose their lucidity, and that, like the generality of mortals, they cannot see by the occiput, the stomach or even through a bandage when under these circumstances ;—even admitting all this, what must be thought with respect to this woman, who could distinguish a knave of clubs on a perfectly blank card—who in a medal of the Academy could see a gold watch with white face and black letters,—and who, if she had been further pressed, would probably have mentioned the hour indicated on this watch.**

" *Lastly,* As a general conclusion from all the experiments, the commissioners aver that M. Berna doubtless deceived himself when he made sure of proving to the Academy, by conclusive facts, the truth of magnetism, and the elucidation by them of points of physiology and therapeutics. These facts are now known, and they are opposed to conclusions in favour of magnetism itself, and they can have no relation either with physiology or therapeutics."— Pp. 39–42.

The publication of a translation of this report in the London Medical Gazette has excited the wrath of M. Dupotet and Mr Colquhoun, who seem to have lost that control over their feelings, which is so indispensible in all scientific inquiries. Instead, however, of answering their remarks, we shall consider the proofs and reasoning of the supporters of Mesmerism.

1. The first argument adduced is, that all great discoveries have been opposed at first, and that those who promulgate them have been persecuted or ridiculed. But animal magnetism has been opposed, and its supporters vilified or laughed at ; therefore animal magnetism is a great discovery.

Now we deny both the premises and the conclusion. It is not true that *all* great discoveries have entailed upon the individuals who made them abuse or ridicule, and we defy those who state this to show that, in the present century, any one great discovery has been productive of evil to its supporters. It is true that every new doctrine is rigorously examined, and all the objections, true or apparent, marshalled against it. But we have yet to learn that when these have been removed, the scientific men of Europe have wilfully shut their eyes to its value. This philosophical scepticism is of the highest use in the advancement of the truth, and no one who values truth more than his hypothesis will ever object to it. It is no doubt exceedingly unfavourable to those who wish to palm their fancies on the public as important discoveries, and to persons who would, by specious pretensions, avail themselves of the credulity of the great mass of the people, to rob them of their money and aggrandize themselves. This, however, will be a great recommendation to the honest part of the community. But, granting that all great discoveries were opposed in the present day, as in times past many undoubtedly were, this would be no proof that animal magnetism was a discovery; because unless it could be shown that nothing but great truths and discoveries are opposed, it would be altogether negative. As the matter stands, its having been so long and successfully combated in an enlightened age affords *prima facie* evidence either that animal magnetism rests upon no foundation, or that its supporters have been unfortunate in their atttempts to expound and prove its doctrines.

2. The second argument is, that certain celebrated scientific men have satisfied themselves of the truth of the subject; therefore either animal magnetism must be true, or these learned and talented men are fools or knaves.

This, like the last, is a very poor argument, and betrays a lurking desire to avoid discussing the subject on its own merits. There is no absurdity which will not be found to be embraced by some distinguished man. Let us examine, however, who the celebrated men are, who are said to have given their support to animal magnetism. Mr Colquhoun mentions Laplace, Cuvier, Wienholt, Gmelin, Reil, Treviranus, Sprengel, Autenrieth, Hufeland, Humboldt, Cloquet, Georget, Rostan, to whom M. Dupotet adds Coleridge, Dugald Stewart, and some men of inferior note. Now, in the *first* place, we must state that we place no value on the German authorities, as it is well known that the German school of medicine has always shown a partiality to mysticism, and that we have yet to learn on what ground Humboldt is to be numbered among the supporters of animal magnetism. In respect to Laplace, the following is the passage on which the assertion of his being a believer in Mesmerism is founded. The reader will see on perusing it that it does not justify the animal magnetists in assuming him to have been a disciple.

> "Of all the instruments we can employ in order to enable us to discover the imperceptible agents of nature, the nerves are the most sensible, especially when their sensibility is exalted by particular causes. It is by means of them that we have discovered the slight electricity which is developed by two heterogeneous metals. The singular phenomena which result from the extreme sensibility of the nerves in some individuals have given birth to various opinions relative to the existence of a new agent, which has been denominated *Animal Magnetism*, to the action of the common magnetism, to the influence of the sun and moon in some nervous affections, and, last-

> ly, to the impressions which may be experienced from the proximity of the metals, or of a running water. It is natural to suppose that the action of these causes is very feeble, and that it may be easily disturbed by accidental circumstances; but because in some cases it has not been manifested at all, we are not entitled to conclude that it has no existence. We are so far from being acquainted with all the agents of nature and their different modes of action, that it would be quite unphilosophical to deny the existence of the phenomena, merely because they are inexplicable in the present state of our knowledge. It becomes us, however, to examine them the more scrupulous, in proportion as we find it more difficult to admit them; and it is here that the calculation of probabilities becomes indispensable, in order to determine to what degree we ought to multiply our observations and experiments, with a view to obtain in favour of the agents which they seem to indicate a probability superior to the reasons we may have for rejecting them."

Let our readers judge from this of the *facts* of the animal magnetists and of their capability of reasoning. The whole passage is simply a warning not to reject any thing extraordinary, merely because it cannot be explained in the present state of our knowledge, at the same time that the author inculcates the most rigorous examination of the evidence on which it is stated to be founded. But he gives no decided opinion on the subject, and even if he had, he was by no means the most competent authority in the matter.

The genius, talent, and learning of Cuvier we respect. But we are not prepared to admit as proofs of the accuracy of any particular doctrine or body of doctrines, the cold and imperfect countenance, which has been extorted from his good-nature and habitual kindness, by the importunity and solicitation of the most persevering fanatics that ever lived. Sure we are that, had he and Georget lived long enough to discover the impostures by which they were deceived, they would have had no hesitation in signing the last report of the Academy, as Cloquet has done, who thereby has retracted the very equivocal support which on a former occasion he had accorded to ainmal magnetism. In proof of this we cite the following passage from Mr Lee's work.

> " In the course of the discussions on the subject in the Academy, several instances of deception were brought forward, which at the time had passed current as proofs of magnetic power. M. Velpeau, in attending to a young man who had been able to predict the periods of his epileptic attacks, and who was also said to be able to read with his eyes bandaged, says, ' I thought of looking under the bandage, which was loosely applied, and my surprize ceased. The performer of these miracles was a young law student, who had quarrelled with his friends, had no means of existence, and who entered an hospital under the pretext that he was paralytic, which was an

invention. I was in the secret, and did not betray him, as it would have lost him; although the surgeon of the hospital thought it really a paralysis, prescribed accordingly, and after uselessly trying other remedies, spoke of applying the moxa; from that period the remedies which had been hitherto inactive performed wonders. From this hospital he went to that of La Charité, to subject himself to the experiments of magnetism. M. Georget became a zealous partisan of magnetism, after having been its opponent, and admitted it in his work on the nervous system; he had performed experiments, and believed them incontrovertible. M. Londe assisted at these experiments. Georget, indeed, carried with him to the tomb his belief in magnetism; but M. Londe has outlived him, and you have heard him declare in this assembly, that Georget and himself had been deceived, that they had been duped by some miserable creatures, who have since boasted of the circumstance. However, the work exists, and the author is no longer here to rectify the errors it contains. In conclusion, I say, that, whenever the facts stated by the magnetisers to have occurred have been inquired into, the wonderful has disappeared."—Pp. 43, 44.

But perhaps the most impudent attempt to influence the opponents of animal magnetism by an array of false authority is in asserting that Coleridge and Dugald Stewart bear testimony to the facts of animal magnetism. The phrase, "facts of animal magnetism," is one of those very convenient expressions which admits of two explanations. It may either mean certain undoubted facts which the partisans of Mesmerism have twisted and misinterpreted, for the purpose of supporting a visionary hypothesis;—or it may be extended so as to comprehend the whole mass of imposture, delusion, mystification, and misconstruction, which they have interwoven into a sort of mystical system, to confound the learned and deceive the vulgar. If the former, it is a miserable attempt to mislead; if the latter, it is a gross attempt to deceive.

The opinion of Coleridge is thus expressed. "Were I asked what I think, my answer would be, that the evidence enforces a scepticism and a *non liquet*;—too strong and consentaneous for a candid mind to be satisfied of its falsehood or its solvibility, on the supposition of imposture or casual coincidence; too fugaceous or unfixable to support any theory that supposes the always potential and, under certain conditions and circumstances, occasionally active existence of a correspondent faculty in the human soul. And nothing less than such an hypothesis would be adequate to the *satisfactory* explanation of the facts; though that of *metastasis* of specific functions of the nervous energy, taken in conjunction with extreme nervous excitement, *plus* some delusion, *plus* some illusion, *plus* some imposition, *plus* some chance and accidental coincidence, might determine the direction in which the scepticism should vibrate."

This is the nature of the support it receives from Coleridge. This acute, learned, and deep-thinking genius, notwithstanding the mysticism in which he occasionally indulged, could come to no conclusion on the subject. Even if he had, we have yet to learn how he was peculiarly fitted to be an authority on the subject. Because a man is a poet and a metaphysician, because he has thought long and deeply on the most abstruse questions of moral and political science, is he therefore to be considered a physiologist, pathologist, and anatomist, and so capable of judging on a subject involving all these that his *ipse dixit* is to be held to be a final judgment of the question?

But what says Dugald Stewart, whose great name has been recklessly employed to give form and substance to this chimera? His words in reference to the subject are these:

> "Among all the phenomena, however, to which the subject of Imitation has led our attention, none are perhaps so wonderful as those which have been recently brought to light, in consequence of the philosophical inquiries occasioned by the medical pretensions of Mesmer and his associates. That these pretensions involved much of ignorance, or of imposture, or of both, in their authors, has, I think, been fully demonstrated in the very able report of the French academicians; but does it follow from this, that the facts witnessed and authenticated by these academicians should share in the disgrace incurred by the empirics who disguised or misrepresented them? For my own part it appears to me, that the general conclusions established by Mesmer's practice, with respect to the physical effects of the principal of Imitation and the faculty of imagination (more particularly in cases where they co-operate together) are incomparably more curious, than if he had actually succeeded in ascertaining the existence of his boasted fluid. Nor can I see any good reason why a physician, who admits the efficacy of the *moral* agents employed by Mesmer, should, in the exercise of his profession, scruple to copy whatever processes are necessary for subjecting them to his command, any more than he would hesitate about employing a new *physical* agent, such as electricity or galvanism. The arguments to the contrary, alleged by the commissioners, only show that the influence of imagination and of Imitation is susceptible of a great abuse in ignorant or in wicked hands;—and may not the same thing be said of all the most valuable remedies we possess? Nay, are not the mischievous consequences which have actually been occasioned by the pretenders to animal magnetism the strongest of all encouragements to attempt such an examination of the principles upon which the effects really depend, as may give to scientific practitioners, the management of agents so peculiarly efficacious and overbearing? Is not this mode of reasoning perfectly analogous to that upon which medical inquirers are accustomed to proceed, when they discover any new substance possessed of *poisonous* qualities? Is not this considered as a strong presumption, at least, that it is capable of being converted into a vigorous remedy, if its appropriate and specific disorder could only

be traced; and has it not often happened that the prosecution of this idea has multiplied the resources of the healing art?" *

Now to the candid mind what meaning does this passage convey? Simply, that the candour of Mr Stewart obliged him, as it did M. Laplace, to admit the facts which the inquiry had brought to light, and that he did admit them as curious illustrations of the principle to which he applies the name of *Imitation* and the influence of the imaginative faculty. Admitting the facts, however, he does not refer them to the principle to which Mesmer and his associates did. Nor did his sagacity prevent him from perceiving the abuse which might be made of their practices, or the evil purposes to which they might and had occasionally been applied. But, like the true philosopher, he recommends that they be made the subject of careful and dispassionate investigation, as furnishing the means of completing an interesting page in the psychological history of the moral constitution of man.

We cannot allow it, therefore, to be a legitimate conclusion, that because the late respected Professor believed the phenomena reported by the academicians in 1784, while he accused Mesmer and his associates of ignorance, imposture, disguising and misinterpreting phenomena, he is, therefore, to be accounted a believer in the "facts of animal magnetism." His suggestion of the employment of the tricks and mummery of the simple enthusiasts and respectable fanatics, who have united themselves under the title of animal magnetists, we shall consider hereafter.

But why should we take the pains to show what is the true meaning of the language of Mr Stewart, did we not know the regret and indignation he must have felt had he lived to see that language quoted to support the credit of a cause for which he always felt contempt. Had the advocates of animal magnetism been actuated by the spirit of philosophical candour, they would have adduced all the passages in which Mr Stewart expresses his sentiments of Mesmerism and its followers. It is well known that a certain class of persons have in all ages quoted particular passages from the Holy Scriptures to defend, in certain circumstances, the most wicked actions, the most sanguinary persecutions, and the most atrocious crimes; and have studiously shut their eyes on those passages in which vindictive feelings were condemned, in which pacific dispositions and general benevolence were recommended, and in which mankind were enjoined not to judge each other, but to consider their own faults before they attempted to amend those of their neighbours. It is by similar partial quotations that Mr Stewart is represented to favour the views of the magnetists. The passage already quoted must be read in juxtaposition with the following, from the latest work of that distinguished philosopher, in order to have a just idea of his sentiments on the true merits of animal magnetism.

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* Elements of the Philosophy of the Human Mind, Vol. iii. London, 1827, 4to, Chap. ii. Section iv. p. 221.

"I believe it will generally be found, that, in proportion to the violence of a man's disbelief, on those important subjects which are essential to human happiness, the more extravagant is his credulity on other articles, where the fashion of the times does not brand credulity as a weakness; for the mind must have something distinct from the objects of sense on which to repose itself; and those principles of our nature, on which religion is founded, if they are prevented from developing themselves under the direction of an enlightened reason, will infallibly disclose themselves, in one way or another, in the character and the conduct.

"Of this no stronger proof can be produced, than that the same period of the eighteenth century, and the same part of Europe, which was most distinguished by the triumphs of a sceptical philosophy, was also distinguished by a credulity so extraordinary, or rather so miraculous, as to encourage a greater number of visionaries and impostors than had appeared since the time of the revival of letters. The pretenders to animal magnetism, and the revivers of the Rosicrucian mysteries, are but two instances out of many that might be mentioned."*

To us, however, who decline admitting any hypothesis upon the authority merely of illustrious names and great examples, this argument is of no weight whatever. It is a matter of perfect indifference to us by what distinguished men this hypothesis has been supported, and that fancy has been received; or even by what authorities the alleged facts have been admitted as well-founded; and unless the hypothesis possess intrinsic merit, and is supported by a reasonable number of facts, of the force and cogency of which not philosophers only, but all can judge, we must decline receiving it as an accredited discovery, or in any other mode than an ingenious but chimerical fancy. If the history of science shows instances of prejudice and ignorance, opposing the reception of what time and information have shown to be real discoveries, it affords also not few examples of the credulity of philosophers, of their incapacity to estimate the weight of evidence, and of their being unable to resist the wide-spreading tide of delusion, and the contagious influence of fanaticism. In the credulity with which several of the alleged facts of animal magnetism have been received, the keenness and sincerity with which the whole hypothesis has been defended, and the eminence of the good-natured enthusiasts by which its claims to general confidence have been attempted to be upheld, there is nothing at which we can wonder, so long as we remember the history of the golden tooth of the Silesian boy, in defence of the actual existence of which learned professors, as John Horst of Helmstaedt, Martin Ruland of Lawingen, and John Ingolstetter of Nuremberg, wrote long argumentative treatises, and against the imposture and charlatanism of which the cool Scottish head of Duncan Liddell was obliged to employ all the force of serious reasoning with a good deal of ridicule and sarcasm.

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* The Philosophy of the Active and Moral Powers of Man. By Dugald Stewart, Esq. F. R. SS. Lond. and Ed. Vol. ii. 8vo. Edinburgh, 1828. Chap. vi. sect. 2, p. 399.

Nor can the system of animal magnetism suffer any degradation by comparing it with the doctrines of Cardan, Paracelsus, and Van Helmont, and the whole of the fancies of that tribe of ingenious but enthusiastic and visionary men, who make so brilliant a figure in the history of medical thaumaturgy. The sympathetic powder of Sir Kenelm Digby itself was an instance of animal magnetism; and every one knows that Digby was in all respects a person of no ordinary genius, and no common reputation in the days in which he lived. Indeed the whole doctrine of signatures, which originated with the Arabians, and was adopted by Paracelsus, may be referred to the same general head, and the patrons of that doctrine may most justly be regarded as the prototypes of Mesmer, D'Eslon, Puysegur, and Deleuze.

With these facts in remembrance, therefore, we discard entirely the influence and authority of the great names by which the alleged science of animal magnetism has been represented to be favourably received; and we maintain that the greater the names by which any given delusion has been attempted to be supported and propagated, the more rigorous ought to be the scrutiny into its intrinsic and actual merits. The number and the rank of those, by whom error and delusion are maintained, can never convert them into truth; or give them a claim to be received as scientific principles. And, if a certain number and class of facts, extraordinary indeed and curious, are referred by a number of very shallow and ill-informed persons to a principle which, in their ignorance, they imagine to be new, and designate as a discovery, this can never be a sufficient reason for preventing those who know similar facts, and can refer them to a principle already admitted to exist, from refusing to admit this alleged discovery, or to recognize these new principles.

If our readers should be inclined to suppose that we have occupied too much time in showing the futile nature of the arguments combated above, we beg to remind them, that they are introduced several times in each of the memoirs, treatises, letters, and articles on the subject, in so specious a manner as to make a favourable impression on many, and obtain a friendly hearing for the absurdities which the magnetists are so anxious *vi et armis* to disseminate.

3. The third argument of the apostles and disciples of magnetism

is an appeal to facts. Now these may be easily shown to be of two kinds;—1*st*, those which can be explained in another and a more rational manner; and, 2*d*, those which are inexplicable either on their own or any other hypothesis, and the evidence for which is, to say the least, exceedingly exceptionable. Instead, however, of considering them in this order, we shall examine the different effects of magnetism as stated by M. Dupotet, leaving the magnetists to make the most of the support which they may derive from witchcraft, necromancy, the royal touch, jugglery, and all the knavery of Pagan priests.

The second chapter of M. Dupotet's work is devoted to the consideration of the physical phenomena of animal magnetism; and as he states that it is desirable that these should be thoroughly sifted and determined before proceeding farther in the investigation, we shall gratify him by examining this portion of the evidence first.

After stating that the physical phenomena of animal magnetism vary according to the power of the magnetiser, M. Dupotet thus describes the physical phenomena.

"When an individual subjects himself to the magnetic operation, the change which is thereby produced in his habitual mode of being is often very sudden and manifest, but more frequently it is necessary for the magnetiser to persevere for a while before any ostensible effect is induced. This will depend, it is obvious, on the power of the magnetiser, and the susceptibility of the person magnetised; but though in some cases no effect be externally manifested, it will be found in the sequel that no individual can magnetise another without producing some change in his organization, nay, sometimes the effect of the magnetic action is not felt until sometime after the operation. The symptoms most commonly induced are the following;—slight pricking and winking of the eyelids—an increase or perhaps diminution in the pulsation of the heart,—a sensible alteration in the temperature of the body, the cheeks sometimes are flushed or become extremely pale, the expression of the countenance, indeed, undergoes a remarkable change, stretchings of the limbs and deep yawnings succeed, a gurgling noise (borborygmi) is often heard in the throat—the patient is perhaps disposed to move, yet feels unable to do so, or experiences an unusual sense of composure, which is to him a peculiar and undefined delight—the breathing frequently becomes much affected, and by a singular anomaly, occasionally the circulation increases in rapidity, while the respiratory movements of the chest become less and less frequent. In one case particularly which fell under my observation, the pulse previous to the operation was 65, the inspiration 24 per minute; after the operation, however, the pulse rose to 115 and 120, while the inspirations fell to twelve. These are the primary and most simple effects of animal magnetism; but often under circumstances which it is impossible previously to determine, phenomena of a more remarkable character are developed. The eyelids of the magnetiser appear spasmodically affected, and close against his will; in vain does he attempt to open them, or change his attitude, in order to keep himself awake; for if the magnetiser persevere, he yields gradually to his influence, and sleep, more or less profound, supervenes. His head, by its own weight, inclines forward on the chest, or more rarely is thrown backwards; his eyelids are generally half-open, and the eyeball moves slowly in the socket; its motions may be followed by the observer, who will perceive it gradually become fixed; drops of mucus fall from the lips, the limbs become cold and the respiration audible. If spoken to, the magnetic sleeper may perhaps attempt to answer, and appear manifestly unable to speak, or he will suddenly awake, rub his eyes, stare round him with astonishment, and recollect what has passed as one may recall a dream. To disturb any one in this state is highly improper, for convulsive fits may be thereby occasioned; indeed, the curiosity of the idle and their wanton interference with persons in the magnetic state, may, when they are least aware of it, lead to dangerous consequences.

"In many cases the magnetic action induces much agitation and partial or general convulsions,—phenomena which are so striking that they attracted the principal attention of Mesmer and his immediate disciples. He termed these convulsion crises, because he presumed that during them, the disease, thus magnetically treated, underwent a specific alleviation or cure. That these remarkable conditions are induced by animmal magnetism, I prove daily," &c. Pp. 31–33.

That all these conditions are apparently produced by the processes used by animal magnetists, may be safely conceded, and so far they may be said to be produced by animal magnetism. But that they are in reality any thing more than the effects of mental excitement on a weak, hysterical, or excitable frame, we utterly deny. In proof of the truth of this position, we refer our readers to the history of the alleged possessed nuns of Loudun, and the able remarks on the subject by Bayle in his dictionary, under the article *Brossier*,[*] the work of Nicole on the Naturalism of Convulsions,[†] the Treatises of Whytt,[‡] Pomme[||] and Tissot,[§] on Nervous Disorders, the Nosological System of Sauvages,[¶] at the Articles *Hysteria*, *Catalepsis*, *Somnambulismus*, and *Daemonomania*, the second volume of Virey on the Natural History of the Human Race,* and the two first volumes of part first of the *Praxis Medica* of Joseph Frank. In the fifth volume of the old Statistical Account of Scotland, or in the third of this Journal, the reader will find some curious details regarding different forms of convulsive diseases, which appeared in various parts of this country, and were the result of imitation, and violent impressions made on the mind. In an inaugural dissertation published by Felix Robertson at Philadelphia in 1805, an account will be found of a nervous epidemic which arose, in the first instance, from certain fanatical observances in Tenessee and Kentucky, and spread afterwards by imitation. Any one who is acquainted with these works, and every well-informed physician must be so, and who has had the usual opportunities of observing the phenomena of nervous diseases, will readily agree with us in the following propositions. 1. The states described by numerous authors, as Catalepsy, Trance, Ecstacy, and Somnambulism are never seen unless in hysterical patients, in females, or female-like and delicate males. 2. The state described as *Demonomania*, is also observed to occur only in females in whom the imagination is easily excited, the nervous system very impressible, and hysterical paroxysms frequently produced. 3. The state named magnetic sleep is evidently closely connected with hysterical symptoms, has been occasionally observed to terminate in them, and must be regarded as a variety of hysterical sopor. In some cases it has been remarked, that the attempt to produce magnetic sleep has caused violent hysterical convulsions. 4. These magnetic effects are not produced in males at all, or are produced only with great difficulty.

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[*] Histoire des Diables de Loudun. Paris, 1636.

[†] Nicole sur le Naturalisme des Convulsions. Soleure, 1733.

[‡] Observations on Nervous Diseases. Edinburgh, 1765, and apud Works. Edinburgh, 1767. 4to.

[||] Traité des Affections Vaporeuses des deux sexes. 8vo. Lyon, 1765.

[§] Traité des Nerfs et de leurs Maladies. 4 volumes 8vo. Paris, 1778.

[¶] Nosologia Methodica, &c. Auctore F. B. Sauvages. Edit. Ultima Auct. et emendat. Amstelodami, 1768. 4to.

M. Dupotet surely imagines that the medical men of this country are as ignorant of the practice of physic, as Mr Colquhoun is pleased to say they are all of the higher departments of physiology, else he would not have ventured to put forth the description of certain nervous disorders, and especially hysteria, as something new, or as developed by a peculiar influence, emanating from the soul or body of another. Who can doubt, that, if hysterical, epileptic, cataleptic, and other nervous patients be properly selected, they may, by any strong impression made on their minds, be thrown into any, or, at least, some one or other of the states mentioned above?

We shall have more to say on this subject, when we come to consider the psychical phenomena supposed to be the effect of animal magnetism. M. Dupotet thus continues his account of the physical wonders of his art.

> "It has been already stated, that the magnetic operation produces sleep; it is a state of sleep, however, very different from natural sleep * * * In contradistinction to the natural, this has

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* Histoire Naturelle du Genre Humain. Paris, A. ix. Tom ii. p. 243.

been termed the magnetic sleep, or somnambulism, which may be more or less complete,—that is to say, its phenomena may be more or less perfectly developed. In this peculiar state of sleep, the surface of the body is sometimes acutely sensible, but more frequently the sense of feeling is absolutely annihilated. The jaws are firmly locked, and resist every effort to wrench them open; the joints are often rigid, and the limbs inflexible; and not only is the sense of feeling, but the senses of smell, hearing, and sight are so deadened to all external impressions, that no pungent odour, loud report, or glare of light, can excite them in the slightest degree. The body may be pricked, pinched, lacerated, or burnt; fumes of concentrated liquid ammonia may be passed up the nostrils; the loudest report suddenly made close upon the ear; dazzling and intense light may be thrown upon the pupil of the eye; yet so profound is the physical state of lethargy, that the sleeper will remain undisturbed and insensible to tortures, which in the waking state would be intolerable."—Pp. 35, 36.

In support of this statement, M. Dupotet adduces a case in which a man was threatened with the application of moxa, if he fell into the so-called magnetic sleep, and to whom it was actually applied when he was stated to be in this state; another, in which a woman was similarly treated; another, that of the girl Samson, mentioned in the report of the commission appointed in 1826, and some others of a like nature, among which we have the extirpation of the mamma by Cloquet. A careful comparison of the whole, with the best authenticated cases of catalepsy and ecstasis will prove the identity of the affections, and it is well known that in nervous individuals, strong impressions made upon the mind have a tendency to produce such results. Be it observed, however, that we do not place implicit confidence in all the statements of these modern thaumaturgists, because every day brings to light some proof of imposture. But, granting some of these cases to be fairly reported, we can easily account for them on known principles. As we are writing for professional men, we have not deemed it necessary to do more than call their attention to the fact, that all the phenomena manifested by individuals subjected to the manipulations of animal magnetists, are identical with the symptoms displayed by highly nervous patients, on whose minds any strong impression has been made. Had we been addressing ourselves to the public at large, we should have proved the correctness of our doctrines by quotations from the best authorities. On the present occasion, however, by pursuing this course, we should have been sacrificing the time of our readers.

We now come to the chapter devoted to the psychical phenomena of animal magnetism. In the commencement we are presented with some very unintelligible speculations respecting "the automatic mechanism of human existence;" "the spirit-breathing intelligence within," &c.; "the antagonism between mind and matter." We are given to understand that it is in sleep that the mind is most active, or, as M. Dupotet expresses it, "his athletic limbs are thrown into repose, the organs of his senses are closed against all external impressions, and, in proportion as his physical being sinks into deeper and deeper unconsciousness, the psychical power appears to awake and energise itself within; dreams which memory fails to register, now crowd upon his brain, he becomes restless, speaks, moves, and performs a variety of actions with a precision and even intelligence which he could not in his waking state have commanded. Such is the natural somnambulist." By way of explaining, we suppose, this last assertion, M. Dupotet informs us, that we are all more or less somnambulists, and among other facts, he gives, as proofs of this, turning in bed, starting, and talking in sleep.

> "Sleep," according to him, "the repose of our physical being, is always a state bordering on somnambulism, and as it gradually developes itself, the organs of the senses become insensible to all external impressions; the eyelids are generally closed, or if open, which often happens, the pupil is insensible to light; the ear too may admit the undulations of air, yet it remains deaf to every sound excepting to the voice of the persons with whom the somnambulist may be *en rapport*, or direct mental communication; but, notwithstanding all this, the mind, independently of the instrumentality of its physical organs, takes a clear and direct cognizance of the relation of surrounding objects. Hence such persons will in profound darkness rise, dress themselves, sit down to study, and perform a variety of actions requiring much dexterity and skill, with unerring precision."—Pp. 59, 60.

After narrating two cases of natural somnambulism, M. Dupotet proceeds to assert, that in this state there is a transference of the functions of the organs of sense, and supports his statement by a reference to the ecclesiastic, who, when thus affected, could write sermons, copy music, &c. when his eyelids were closed, and a piece of paper was placed between him and his work. This individual required, however, the aid of a candle, though he would use only that which he himself had lighted. This wonderful story, which our readers must have frequently seen detailed at length, rests on the authority of the Archbishop of Bourdeaux. The author might have given many other instances of a similar nature, and of equal authenticity. They are more likely, however, to confirm the faith of believers than convince sceptics. The truth is, that, on minutely examining the evidence on which such stories rest, it will be found to be exceedingly defective. That some part of the narratives may be true we allow; but the fancy, the prejudices, the appetite for the marvellous possessed by the narrators, must be supposed to have furnished the most wonderful circumstances. We know, and so does every man accustomed to examine evidence, that there are very few people who can narrate distinctly all the circumstances of any transaction which they have seen, and that all men are apt to confound their own inferences with facts, even without any wish to deceive. When we find then, that in the best authenticated and most unexceptionably reported cases of somnambulism, no such transference of sense has been seen, we must be allowed to disbelieve its reality in less authentic instances. We were somewhat astonished to meet with the name of "an English physician, Dr Sibley," given as an authority, having never heard of his existence. Our ignorance, however, was enlightened by the foot-note from which it appears, that the personage is the author of "A Key to Physic and the Occult Sciences," printed at London, and that he is styled M. D. F. R. H. S. What the last four letters may indicate, we know not, and it is not worth while to conjecture. M. Dupotet gives the following summary of the psychical phenomena exhibited by natural somnambulists, on which we beg leave to offer a few observations.

"1. They converse clearly and intelligently with all those persons with whom they are *en rapport*, or in mental relation.

"2. They perceive the relations of external objects, through some other channel than the organs of sense, through which such impressions are usually conveyed.

"3. Their perceptions in regard to the objects of their attention are more than ordinarily acute; but the organs of the senses are closed against other impressions.

"4. They manifest a clearness or lucidity of ideas, and a temporary knowledge and intellectual activity, beyond that which they possess in their ordinary waking state.

"5. They forget when they are awakened every thing which may have taken place during their somnambulism; but on returning into the same state, they recollect every thing which occurred during their former fits."—Pp. 68, 69.

Of the first of these assertions, there is not the faintest shadow of a proof. The second is unintelligible, unless it states the truism, that it is the mind that infers the relations of objects, and not the senses, and this, we all know, it does whether the individual be awake or in a state of somnambulism, though certainly in the latter condition with less accuracy than in the former. The third contradicts the statement made in the previous quotation, that the senses are insensible to impressions, because, if the sentence means any thing, it is that the organs of the senses are closed against all impressions except those connected with the objects of their attention. The fourth statement is true to a certain extent. The individuals seem to recall all their previous information on the subjects to which their attention happens to be directed. But this is no more than what happens in the waking state when the powers of the mind are concentrated on one subject. We suspect that what M. Dupotet states under the fifth is not invariably true. Similar phenomena, however, as our readers are aware, have occurred in intoxication and some forms of insanity.

M. Dupotet next relates some cases of supposed magnetic somnambulism, and gives the following summary of the phenomena which, according to the magnetists, occur in that state.

"1. While the organs of the senses are in a state of complete insensibility, unexcitable by any external stimuli, they (the somnambulists,) mentally take cognizance of the conditions and relations of surrounding objects, through some other channel than the organs through which such impressions are usually conveyed.

"2. There is in many cases an obvious vicarious transference of the senses from their appropriate organs to other parts of the nervous system, as to the tips of the fingers, epigastrium, and other parts of the body.

"3. The lucidity of their vision penetrates through intervening opaque objects, and even takes cognizance of events passing at a distance.

"4. They possess the faculty of self-intuition, that is to say, a clear insight into the normal or abnormal condition of their own organization, and they perceive and describe with exactness the external condition also of those with whom they may be *en rapport*.

"5. They appear endowed with a knowledge beyond that which they ordinarily possess, and prescribe for themselves, as well as for those with whom they are *en rapport*, remedies for such complaints as they may be afflicted with, and these are generally found successful.

"6. Their lucid vision often extends beyond the present existence, and they foretell, with circumstantial minuteness, events which will happen in connection with their own organization; even the day and hour—the very moment—when such predictions will be verified, is accurately specified.

"Lastly, on recovering from their somnambulism, they remember nothing which occurred during the magnetic state; but when again thrown into somnambulism, the memory between the two magnetic states is continuous."—Pp. 111, 112.

As an illustration of the sort of proof by which the most startling of these doctrines are maintained, we quote a story from Mr Colquhoun's work. It has especial reference to No. 1, 2, 3, and 4.

"The following case occurred at Paris, in the chambers of Dr Fouquier, in the year 1830, and was witnessed by a great many persons. Petronilla Le Clerc, aged 26, was admitted into the *Hôpital de la Charité*, afflicted with a cerebral, spasmodic, epileptiform affection. M. Sebire, who had charge of her, applied magnetism to her several times, when some very remarkable phenomena were manifested.

"In the first sitting, the somnambulist gave several marks of lucidity. The person who had magnetised her presented to her some objects, such as a bottle filled with vinegar, sugar, bread, &c. which she recognized perfectly well without seeing them. Besides, she had a bandage over her eyes. In order to answer questions which were put to her, she turned to the opposite side, and plunged her face into the pillow. Without being asked, she said to the person who was holding her hand, 'You have got a headach.' The fact was true; but to try her, M. Sebire answered that she was mistaken. 'That is singular,' she replied, 'I touched some person who had a headach, for I felt it." She distinguished several of the persons who were present at the experiments, by some peculiarities of their dress.

"One of the most remarkable circumstances was the following. The magnetiser had retired, after promising to return at half-past five o'clock, in order to awaken her. He arrived before the time. The somnambulist made him observe that it was not yet half-past five. The latter answered that he had just received a letter which obliged him to return sooner. 'O yes!' she immediately replied, 'it is that letter which you have in your portfolio, between a blue and a yellow card.' The fact was strictly true. M. Sebire, without saying anything, placed a watch behind the occiput, and then asked her what o'clock it was. She answered, 'six minutes past four,' and she was right."—Isis Revelata, Vol. ii. pp. 81–82.

The exact value of this case will appear from the following quotation from Mr Lee's very sensible little work.

"All this sounds very marvellous, and no doubt appeared conclusive to the bystanders, of the truth and miraculous powers of magnetism; but unfortunately for the magnetisers, Petronilla died of phthisis, in the Salpetrière in 1833, and repeatedly declared in the latter part of her life, to the *internes* of the hospital, that she had never experienced the least degree of somnambulism, and that she used to laugh in her sleeve at Georget, and the others who were present at the experiments. She affirmed that she had passed with Brouillard, another somnambulist, more than one delicious evening, in recounting the *mystifications* of the day, and preparing others for the morrow. These persons also allowed themselves to be *pricked* and *pinched* without evincing pain. I am acquainted with the gentlemen to whom these avowals were made, and one of them assured me of the correctness of the above statement."—Pp. 45, 46.

We need quote no more cases in illustration of the imposture which was evidently practised by one party at least, if not by both. In all the most striking cases, there was an opportunity for practising delusion, and we suspect that, in more than one, the operator and the patient had previously rehearsed their parts.

We proceed to consider the remainder of M. Dupotet's statements given above. According to M. Dupotet's fourth and fifth assertion, a magnetist, and one susceptible of his influence, would be of the greatest service in large hospitals; nay more, a few such performers in a large city would amply supply the place of all the physicians and general practitioners; and, although operating surgeons and accoucheurs could not be altogether dispensed with, yet very few would be required. To speak seriously, however, the very evidence offered in support of the pretensions of the supposed magnetic somnambulists being able to prescribe successfully for themselves and others, with whom they may be *en rapport*, and to foretell with circumstantial minuteness events which will happen in connection with their own organization, completely destroys the argumentative force of the case. When we examine the proofs, we find in some evident collusion, and in others downright imposture or delusion. What are the events, in connection with their own organization, the approach of which the unhappy beings predict? Nothing more than fits of epilepsy, attacks of hysteria, or similar affections, which are to a certain extent under their own control, because by a vigorous effort of the mind these may be put off or brought on. Let our readers consult the passages of the works of Whytt, Sauvages, Cullen, and Joseph Frank, which have a reference to these affections, and they will find ample proof of the correctness of our statement. In some few instances, patients who were already convalescent have predicted their complete restoration by a certain day. The event has been in accordance with their assertion. But what was more easy for them than, when they felt themselves well, to feign illness till the period arrived which they predicted, and then to proclaim their complete restoration to health?

We pass to the chapter of M. Dupotet's work devoted to the supposed curative effects of animal magnetism. The diseases in which he recommends its use, are epilepsy, paralysis, hysteria, neuralgia, chronic rheumatism, headach,—we suppose that form which is known under the name of nervous headach,—and general debility depending on the strumous diathesis. He also suggests it as a means of resuscitation. Now we must say that, if ever animal magnetism has produced any sanative effects, these have been the consequence of violent impressions made on the mind of the patient, and not of any mysterious influence emanating from the soul or body of the operator. But it did not require the aid of impostors, enthusiasts, and fanatics to prove that many affections, even obstinate affections of several years standing, have occasionally yielded at once to some violent impression made on the mind. With these medical works are filled, and consequently we do not dispute the reality of a few of the cures effected by the jugglery of Mesmerism. But what has this to do with the truth of the doctrines of the animal magnetists? When we have a great comprehensive principle on which many hundreds of phenomena observable in disease may be explained, there is no necessity for having recourse to a mystical hypothesis.

It has been said, however, if animal magnetism sometimes produces good effects, why not employ it as a means of cure? The answer is easily given. No one can tell what may be the effect of any powerful mental impression on a nervous invalid. It may aggravate every bad symptom, and in nine cases out of ten will do so, or it may be perfectly nugatory, in which case the time which might have been better employed in trying other measures is lost, and the disease in the meantime is making progress. No one is, moreover, justified in making use of violent and uncertain means in the treatment of any disease, when he has other agents at his disposal, and to every well regulated mind the employment of falsehood and imposture is revolting. It may be necessary on certain occasions to conceal the truth from a patient, when we are certain that the disclosure of it would deprive him of all chance of recovery. But we have no right to abuse the judgment and feelings of an invalid, and, by weakening his mind, render him tenfold more liable to the class of diseases, from one of which at this risk, we may have at the most, only one chance in a thousand of relieving him. Is it not clear too, even suppose the chance of success was the reverse of what we believe it to be, that the principle being understood, the faith of the sufferers would be lost, and no effects follow the manœuvres?

Let the medical man then not defile himself by countenancing this wretched imposture. Let him trust to the resources which the accumulated experience of ages, and the advancing science of the day, place at his disposal, secure that, if he avail himself of these, he will in the best manner possible acquit himself of his duty to society. We shall not enter upon the subject of magnetised trees, magnetised water, &c. the utter absurdity of which has been clearly demonstrated both in London and Paris, but shall conclude our observations on the subject by quoting from the work of Mr Lee the following conclusions, which we heartily adopt so far as they go.

"From what has been said we may conclude,

"1. That the production of convulsive crises and other states, by the practice of Mesmer and his followers, was but the effect most likely to ensue in impressionable individuals, from the influence of an excited imagination and of imitation, similar results being constantly seen in the ordinary practice of medicine.

"2. That the instances of intuitive foresight, transposition of the senses, clairvoyance, &c. have been disproved in every case that has been impartially inquired into, and that in many of them there have been gross attempts at deception, by the magnetiser or magnetised, or both.

"3. That there has also been frequent deception on the part of individuals with respect to the state termed magnetic somnambulism; that no proof has been given that any such state is produced by magnetism; though states of partial torpor not unfrequently occur in nervous persons, especially after moral impressions; and that, when in these states, the individuals are to a certain extent insensible to mechanical stimulants, though at the same time they can occasionally give brief answers to questions, particularly if the questions have reference to the subject uppermost in their thoughts.

"4. That a state of partial or total sleep is produced in many persons by the action of the *passes*, and in some others convulsion movements or other slight effects; but inasmuch as similar effects are also producible without magnetisation,—if the person supposes that the process is continued,—there is every probability that they arise in all cases, either from the impression produced upon the individual in imagination, or from the ennui and sedative influence produced by all monotonous impressions on the senses, when persisted in for a certain period."—Pp. 48–50.

Such is the tissue of absurdity and falsehood which the magnetists are attempting to palm upon the public as a novel and a brilliant discovery; and because the medical men of this country will not at once resign their reason, and place implicit confidence in these statements, they are accused of prejudice, ignorance, want of good faith, a persecuting spirit, and every bad quality which is suggested to this coterie of fanatics, by their spleen and disappointment. We trust that the grave of this imposture is already dug, though its history must ever form a most humiliating chapter in the annals of human folly and knavery. True it is that good often comes out of evil, and perhaps, by the discussion which this subject has produced, the attention of physicians may be attracted, more than it has been for some years, to the influence of the mind upon the body both in health and disease.

If more decided confirmation were required of the justness of the opinions now given, it is most amply supplied by the recent scenes of Mesmeric experimenting in London University College Hospital. These scenes have been so fully described by our respected contemporary the Medical Gazette, and have been made the subject of so many observations in that Journal, and in the Medico-Chirurgical Review, that it is nearly superfluous for us to occupy even a single line more on the subject. As, however, the course of experiments may now be said to be completed, it may not be improper to express here the conclusions which their performance has suggested.

We cannot help thinking, then, that, whether some of the facts be admitted or not, or whether they deserve to be admitted as facts, which some recent accounts have rendered very doubtful, the whole process has contributed to illustrate that useful chapter of the history of the human mind, the credulity of philosophers, and the extreme aptitude of patients to deceive, when they meet with fit subjects. Two girls, more conversant in the ways of the world, and its most corrupted part, than with virtue, truth, or sincerity,—so habituated to deceive, that it may be said, without doing them injustice, that they scarcely knew what it was to speak with candour, or act with sincerity, are made the subject of experiment before a number of persons anxious to obtain certain results. Is it wonderful that the natural cunning of these girls should suggest to them the furnishing of several of the results wished, and that their nervous susceptibility rendered them convenient subjects for the rest? That the first stratagem was practised on the experimenters, is clearly established by the testimony of many observers, but more especially by that of Mr Taylor, by the letter of Mr Blake, by the frightful and disgusting scene exhibited by Madame O'Key, on the memorable day in the last week of June, when she honoured Dr Elliotson with several striking marks of her regard.* and by the Nickel experiment recently published in the Lancet. Of the second, the experiments themselves bear most decisive and unequivocal proof; and we maintain, that where effects appeared to follow the pawing of the damsels, the effects were mere modifications of hysteria, notwithstanding all that Mr Mayo has said to the contrary.

If there be any thing calculated to excite wonder, it is that learned physicians and physiological observers could be so credulous, and should be so ready to admit as facts, what persons of ordinary observation and reflection must have seen were pretended, and to recognize as new principles what were different expressions, as the algebraist would say, of well known phenomena. The inquiry, however, has been of very great service, and we believe will continue to operate beneficially in placing medical practitioners upon their guard, and in showing in its true light, without the influence produced by great names, or the *prestige* of fashion, the actual merits of Mesmerism. The first step towards the discovery of truth is to find that we have been in error; and in this respect, we think that the performances of the magnetic doctors will be a lesson to the profession in general. We would say with the Poet,

> "Felix quem reddunt aliena pericula cautum."

And if this do not answer the purpose of a hint, we would quote from a careful observer of human nature, who might have been cited as a believer at least in magnetic influence, the following judicious reflection which he places in the mouth of one of his characters.

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* "I never saw such a d——d fool in my life."—Gazette, June 30, from Lancet.

"It is a wonderful thing to see the semblable coherence of his men's spirit and his. They by observing of him do bear themselves like foolish justices; he by conversing with them is turned into a justice-like serving man. Their spirits are so married in conjunction with the participation of society, that they flock together in consent, like so many wild geese. If I had a suit to Master Shallow, I would honour his men with the imputation of being near their master. If to his men, I would curry with Master Shallow, that no man could better command his servants. It is certain that either wise bearing or ignorant carriage is caught as men take diseases one of another; therefore let men take heed of their company."

It is superfluous to say where this text is contained. The magnetists know where to find the commentary.

It remains for us to state briefly our opinion of the works whose titles are quoted at the commencement of the article.

The Isis Revelata is distinguished by a considerable degree of learning and ingenuity. It is a useful collection of facts, more or less authentic, and contributes to the amusement if not to the edification of the reader. We regret to observe, that the author shows more want of temper in speaking of his adversaries, especially those of the medical profession, than we should have expected from a person so mild and amiable in private life. The accusations which he brings against them of ignorance we are sure originated in haste; and we therefore forgive him.

His letter is filled, we regret to observe, with ebullitions of spleen directed against the members of the medical profession, especially those of longest standing, reviewers, &c. Surely this is not the most effectual way to make converts. An appendix, amounting to one-fourth of the whole, is devoted to the especial benefit of Dr Elliotson, who is treated in a harsh and not very philosophical manner, for the great offence of not believing all the dogmata of Mesmerism. Dr Elliotson, we hope, has, by his late recantation and zeal as a propagandist, merited Mr Colquhoun's forgiveness. We would suggest to Mr Colquhoun, that he might advantageously mitigate the severity of his remarks on the phrenologists. He will find them able allies. The example of Dr Elliotson will show with what felicity animal magnetism and phrenology may be united; and in Mr Sydney Smith's recent work on Phrenology, Mr Colquhoun will find his doctrines promulgated in a manner which, we are sure, he never dreamed of.*

Mr Lee's little unpretending work on Animal Magnetism and

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* Principles of Phrenology, by Sidney Smith. Glasgow, 1838. p. 34.

Homœopathy is worthy of great praise. An attentive perusal of it will convince any one of the amount of claim which these two subjects have on his attention. It does great credit to the author's judgment.

To those who read Mr Colquhoun's work, that of M. Dupotet will be uninteresting and quite unnecessary. In charity we suppose the author possessed of the most credulous simplicity of character, and the weakest reasoning powers, because otherwise we would be forced to think worse of him than we are willing to express.

ART. III.—*Outlines of the Principal Diseases of Females. Chiefly for the use of Students.* By FLEETWOOD CHURCHILL, M. D., Licentiate of the King and Queen's College of Physicians in Ireland, Physician to the Western Lying-in-Hospital, Lecturer on Midwifery, &c. in the Richmond Hospital School of Medicine. 8vo. Dublin, 1838. Pp. viii. and 402.

DR CHURCHILL has already distinguished himself by several monographs on the diseases of women, which he has given to the world through the medium of this and the Dublin Journal. The volume now before us is devoted to the consideration of those affections which are not peculiar to the lying-in condition. The author thus describes his object.

"If any apology be necessary for the publication of the following work, the author trusts that it will be found in the circumstance, that a treatise on the diseases of females, adapted equally for junior and senior students, is yet a desideratum in medical literature.

"Many valuable monographs we possess, and even volumes of admirable essays on this subject, but the former are so scattered as to be out of the reach of the greater number of students, and the latter so little elementary as to be unsuitable except for the more advanced.

"To meet these objections, it has been arranged, in the present volume, that the text shall contain an ample outline of the history, pathology, symptoms, and treatment of the diseases, without any detail of controversies or conflicting opinions, which are given in full in the notes appended to each page; so that the junior student, by confining his attention to the text, may acquire elementary information, which may be subsequently extended by consulting the notes and references.

"In the notes likewise will be found extracts from various authors, wherever the support of their opinions seemed desirable. I have preferred giving their views in their own words, as being less liable to be mistaken.

"Where extracts were not deemed advisable, references have been given, and considerable care has been taken to have them correct.

"Any remarkable and authentic cases which bear upon the subject have been inserted for the double purpose of elucidation and description."—Pp. v. vi.

It is but justice to say, that the promises thus made by the author have been amply fulfilled, the volume containing a mass of theoretical and practical information clearly and succinctly expressed, which must prove of essential service both to the student and the general practitioner.

The work is divided into two parts,—the first being devoted to the diseases of the external genital organs, the second to those of the internal. The former comprehends phlegmonous inflammation of the external labia, encysted tumours of the labia, oozing tumour of the labium, warty tumours of the vulva, itching of the vulva, inflammation of the mucous membrane of the vulva in children and adults, and tumours at the orifice of the urethra; the latter, diseases of the vagina, uterus, Fallopian tubes and ovaries. It would be impossible within any ordinary limits to analyse a condensed work of this description. We shall therefore content ourselves with recommending it both to the student and the practitioner, as an excellent manual on the subjects of which it professes to treat. We must, however, state, that the paper and printing are of the most wretched description, and that many typographical errors occur, which, by a little attention, might have been avoided. We trust, that, when the book reaches another edition, which, from its merits, it cannot fail soon to do, Dr Churchill will take the necessary measures for sending it into the world, with all the advantages which can be secured to it by the printer and paper-maker. The circulation of this edition will certainly not be owing to the external appearance of the volume.

ART. IV.—*A Medico-Legal Treatise on Homicide, by external violence, with an account of the circumstances which modify the Medico-Legal characters of Injuries and Exculpatory Pleas.* By ALEXANDER WATSON, Esq. Fellow of the Royal College of Surgeons, Edinburgh, and one of the Surgeons to the Royal Infirmary. Edinburgh, 1838. 8vo. pp. 355.

NEXT to toxicology and the arduous and complicated questions which it involves, Homicide, and the inquiries to which its various modes give rise, constitute by far the most important department of legal medicine. Taking for its principal object the protection of human life against violence of every description, on the one hand, the difficult, and often important distinction between death from violence and from natural causes, or the effects of disease, on the other; and being often invested with the task of deciding in cases of homicide, on the moral responsibility of the agent by whom it is perpetrated, this department of legal medicine and surgery has at all times required a rare combination of knowledge, experience, caution, and precision.

Though the subject of homicide has received more or less consideration from all the medico-legal writers, from Zacchias,[*] Zittmann, and Bohn,[†] to Teichmeyer,[‡] (1762), Ludwig, (1773),[§] Kannegiesser,[‖] (1777), Plenck,[¶] (1781), Metzger,[**] Frank,[††] Mahon,[‡‡] Foderé, [§§] and Beck, and has incidentally occupied the attention of many of the most eminent surgeons in France and England, no express treatise on the subject in the English language had appeared before the present, to guide the medical jurist in the formation of his opinions. It may be further observed, that, however closely the criminal law agrees in almost all European countries, and consequently, in those divisions of legal medicine which are applicable to it, the foreign treatises may be of great service; still the peculiarities of the criminal code in this country, as well as the differences in the forms of process, in the mode of trial, and the rules for procuring evidence, are so considerable, as to constitute sufficiently strong reasons to show the necessity of an English work which might afford, in a small compass, sufficient information to guide the medical witness in a court of law.

It is chiefly with the view of furnishing the kind of assistance now specified, that Mr Watson has composed the present work. As he had been early led to direct attention to cases of this kind, and was repeatedly requested by the Sheriff of the county to conduct inspections in cases which became the subject of judicial inquiry; this circumstance enabled him, in the course of years, to collect a considerable number of cases illustrative of various delicate and difficult questions arising out of the different kinds of homicide, and the mode of distinguishing death in this manner from death by accidental or natural causes. The readers of this Journal are aware that Mr Watson has already appeared before the profession as a medico-legal writer on several of the cases now mentioned; and it was natural for him, as his opportunities increased in number and extent, to expand his views, and to undertake the preparation of a systematic treatise on the subject.

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[*] J. Zacchiae Quaestiones Medico-Legales, Lug. 1661. Folio.

[†] J. F. Zittmann Medicina Forensis Francofurti, 1706. 4to. J. Bohnius de Renunciatione Vulnerum, seu Vulnerum Lethalium Examen. Lipsiae, 1711, 4to.

[‡] Herm. Frid. Teichmeyeri Institutiones Medicinae Legalis vel Forensis, &c. Editio Quinta, Revisa, Emendata et multis additamentis aucta. a Joanne Frid. Faselio, M. D. &c. Jenae, 1762.

[§] D. Christ. Ludwig Institutiones Med. Forensis Praelectionibus Academicis Accommodatae. Lipsiae, 1773. Edit. 2da Auctior. Curante D. E. Gottlob Rose. Lipsiae, 1788.

[‖] Gottlieb Henr. Kannegiesseri Institutiones Medicinae Legalis cum praefatione A. Eliae Buchner. Edit. Altera Aucta. et Emendata. Kiliae Holsatorum, 1777.

[¶] Josephi Jacobi Plenck, C. D. Elementa Medicinae et Chirurgicae Forensis. Viennae, 1781.

[**] Kurzgefasstes System der Gerichtlichen Arzneiwissenschaft. Entworfen von Dr John. Dan. Metzger, Dritte Verbesserte Ausgabe. Konigsberg und Leipzig, 1806.

[††] Systema Completo di Polizia Medica di G. P. Frank. Traduzione del Tedesco. Milano, 1808–1830. The first German edition was published in 1786; the second in 1790. Volume xviii.

[‡‡] Medecine Legale et Police Medicale, par P. A. O. Mahon. Tom. iii. 8vo. Paris, 1801.

[§§] Traité de Medecine Legale et d'Hygiene publique en de Police de Santé. F. E. Foderé. D. M. Paris, 1813. Cinq Tomes.

In the present work, after some general remarks on the nature and objects of medical jurisprudence, in which are explained the duties of the medical officer, whether summoned as witness or as adviser, the author proceeds in the second chapter to consider homicide in general. This he divides, according to the usual legal distinctions, into wilful homicide or murder, culpable homicide, accidental or casual homicide, and lastly justifiable homicide.

In the third chapter the subject of death by violence is considered generally, and distinguished, *first*, as it is sudden or lingering; and, *secondly*, as it affects directly or indirectly one or more of the four great systems of the animal body; the nervous system, the circulating system, the respiratory system, and the nutritive or digestive system.

In the fourth chapter, the author, after giving a medico-legal definition of wounds, treats shortly, but in eight sections, successively, of wounds of the soft parts, contusions, ecchymosis, concussion, fracture of the bones and cartilages, dislocation of the joints, sprains, and burns.

In the ensuing four chapters, viz. the fifth, sixth, seventh, and eighth, he considers homicide as occasioned, 1*st*, by injuries of the nervous system, including injuries of the brain, spinal chord, and their nervous ramifications; 2*d*, injuries of the circulating system, including death by hemorrhage and the admission of air into the veins; 3*d*, injuries of the respiratory system, embracing the consideration of the various modes in which asphyxia may be caused, with wounds of the chest and lungs; and 4*th* and lastly, injuries of the nutritive system and the organs of reproduction.

The ninth chapter is devoted to the examination of those circumstances which modify the medico-legal character of wounds and other injuries. In the tenth, the medico-legal examination of wounds is considered. In the eleventh, the author treats of infanticide and concealment of pregnancy. In the twelfth, he considers shortly the different varieties of mental derangement, in reference to the foundation of exculpatory pleas. And in the thirteenth chapter, he concludes the work by some directions as to the mode of conducting the inspection of dead bodies in medico-legal cases, and the best mode of framing medico-legal reports.

This general sketch of the contents of the present volume, and of the order in which the subjects are treated, we give here, because it is foreign to our purpose to enter into a minute or detailed analysis of the subjects discussed; and because this sketch will convey to the reader a just idea of what he may expect. The method of arrangement is, it will be seen, in general physiological, that is, that the different forms of homicide are considered in relation to the physiological part performed by the organs, in which the injury or suspension of the different functions takes place. In considering the individual lesions, however, the author properly combines with this method of arrangement, the pathological character of the different lesions.

The work thus arranged may be represented as consisting of two portions; the first, a statement or exposition of doctrines and principles, general and special; the second, the illustration and establishment of these by the detail of apposite cases. In the first division, which occupies but a small proportion of the volume, the principles, general and special, are clearly stated, and the exceptions specified and considered in their proper places. The principles and rules are then illustrated and enforced by the cases, which are numerous; and, though sometimes rather short and meagre, they will in many instances, be perused with interest and instruction.

To some it may appear that the cases, which amount in all to 238, are unnecessarily numerous, and occupy too large a proportion of the volume. There is no doubt that in some sense, and, to a certain extent, this objection is not without foundation. It may be observed particularly, that where the arrangement is clear and methodical, and where the great general principles of any department of science are distinctly expounded, some are so manifest as not to demand illustration, others may be illustrated with sufficient perspicuity by one apposite case, and illustrations by means of cases then become requisite, chiefly where the general rules admit of exceptions, and in those peculiar circumstances in which the general principles require to be modified.

While this must be admitted on the one side, candour requires us to look at the opposite view of the subject. In a work like the present, which embraces the consideration of many difficult questions, involving not merely physiological, pathological, and general surgical inquiries, but in which moral considerations, legal questions and their modifications, require to be carefully weighed, it is rather an advantage than an objection, that the general principles are illustrated by a considerable number of cases. It is clear that, in a subject like the present, though the author may not distrust his own powers of drawing and establishing general conclusions, the reader may wish to see the facts on which these conclusions are founded; and, under all circumstances, whether the conclusions be correctly established or not, the reader is thus provided with the means, if need be, of rectifying them. On these grounds, the number of cases in the present volume must recommend it strongly to the attention of the practitioner, and must be regarded as a very valuable part of the treatise.

As an example of the manner in which the author unfolds the general principles, the following extract, on an important subject, may be given; and the two cases will show the general character of the details.

"I now proceed to the consideration of a very important and difficult question, which frequently falls to be decided by the medical jurist, viz. Whether the deceased died from drowning, or was cast into the water after having been otherwise murdered?

"The first thing to be attended to in such cases, is to ascertain whether or not there is evidence of death by drowning. In deciding this, it is necessary to recollect, that the peculiar characters of drowning, so often found in the dead body, are not constant; and that in fact a person may have been drowned without his body presenting any unusual appearance after death. It is also necessary, when the appearances characteristic of drowning are present, carefully to inquire whether or not they could have arisen from other causes.

"Lividity of the skin of the head and neck is only a presumptive mark of drowning, for it may arise from various other causes.

"Water found in the air-passages is an indication highly presumptive of death by drowning, as it could only get admission there before death. There may be a possibility of its admission after death, but it could then get in only in very small quantity.

"Froth in the air-passages occurs in several diseases, and in other forms of asphyxia; but when it is conjoined with water, it is an additional criterion to other signs of drowning.

"The presence of water in the stomach is also a circumstance which has given rise to a difference of opinion. The same remark may be made of this, which has been made respecting water in the air-passages. When it exists in large quantity, as to the amount of several pounds, there can be no doubt as to its having been swallowed before death. But if in less quantity, the nature of the case must be corroborated by the general evidence. The water being the same with that from which the body was taken—the hands being scratched, and holding in them leaves or other bodies from the bottom or sides of the water, are also circumstances of considerable importance, as denoting that the individual had been immersed alive. Each of these circumstances is equivocal individually, but when conjoined they afford very strong evidence, as they could not have been otherwise imitated.

"Case 124.—On the 21st March 1833, I inspected, at East Calder, the body of J. B., a remarkably big stout man about 35.

"This individual had been amissing from Tuesday the 12th of March, when he had attended a fair at Linlithgow, which was near his residence, had got drunk, and then fought with several men.

"No tidings could be obtained of him till the 17th, when his hat was found in a deep pool of water, which had formerly been a quarry, at a short distance to the east of East Calder. This water pool is close to the road side, and there were several gates leading to it from the footpath, which were seldom closed. On the side of the quarry which is next the road, there is a perpendicular rock from eighteen to twenty feet in height between the top of the bank and the surface of the water. This precipice has no fence at its summit to prevent accidents.

"Immediately after the hat was found, the friends of the deceased commenced dragging the pool for his body, which they succeeded in obtaining from the bottom, after three days' search. The body had, therefore, probably lain in the water from the 12th till the 20th, a period of eight days.

"In dragging the pool, a boat was used; and from the tackle employed, the searchers conceived that they found the body at the bottom of the pool, where it was from twenty-eight to thirty feet in depth.

"When the body was found, marks of violence were observed upon the head, which, with other circumstances, gave rise to a suspicion of his having been murdered and afterwards thrown into the water.

"*Inspection.*—Externally, the skin of head and face was somewhat redder than natural. Some tumefaction above the right eye, accompanied with ecchymosis to a small extent; eye-lids closed. Two small wounds in the skin under the right eye. No other scratch or mark of injury could be observed upon the body; but the cuticle of the hands and feet had the usual blanched appearance, arising from maceration in water for several days.

"On opening the cavities, the veins of the head were filled with fluid dark-coloured blood, which flowed freely out on incision. The brain was otherwise natural, except some serum tinged with blood contained within its ventricles.

"The lungs were of natural colour, very emphysematous and crepitating, and contained much less blood than usual. About eight pounds of bloody fluid was taken out from the cavities of the pleura. There were several ounces of the same in the pericardium. This fluid, when examined more particularly, seemed to be almost pure blood. It was 1011 of specific gravity to water as 1000; and was almost completely coagulable by heat. The trachea contained no frothy fluid; and the tongue was not projecting from the mouth.

"The right side of the heart was moderately filled with grumous clots of blood. These clots seemed to be of a darker colour, and more dense than usual; they had the appearance of blood after most of its watery part has been expressed from it.

"The contents of the abdomen were quite natural. Some water in the stomach mixed with food.

"In this case drowning was the cause of death. It was afterwards ascertained that, at a late hour in the evening of the 12th, the individual had been seen on the road near to the quarry alone, and in a state of intoxication; when in all probability he had wandered off the road towards the quarry, fallen over the precipice above described into the water, and sunk immediately to the bottom.

"This case illustrates several important particulars in the phenomena of drowning.

"From the appearances in the body there were no injuries to account for death, and from the depth at which he was found, it is highly probable that he had fallen from the height of about twenty feet into the water,—descended by the impulse to a considerable depth below the point of equipoise, never rose again, but continued to sink, and of course soon died.

"The effusion of blood which had taken place into the cavities of the brain, pleuræ and pericardium, must have taken place after death, in consequence of the pressure of water above the body forcing the blood through the extreme vessels into parts of the body where there was least resistance, as the same degree of pressure was prevented by the cranium and ribs. Had there been a wound in the chest the case would have been puzzling, or it might have been supposed that a blood-vessel had burst internally and caused death. How are such cases to be distinguished? By there being effusions of blood not in one, but in *each* of the shut cavities protected from the hydrostatic pressure, as the ventricles of the brain and cavities of the chest.

"CASE 125.—On 21st January 1833, I inspected the body of J. R. a stout man, about 35 years of age, who had been employed as an engine-man in the Royal William steam-packet.

"The body of this man had been found at Wardie near Newhaven on the 19th, lying within sea-water mark, and from thence was conveyed to the West Kirk Charity Work-house.

"The clothes upon the body were quite wet, and contained in several parts a quantity of small blackish gravel, which had been washed into them by the sea-water. This gravel was similar to that which covers many parts of the shore at Wardie.

"The cuticle on hands and feet was blenched and shrivelled. There were some scratches on the back of the hands.

"Viewed externally, the face was altogether swollen, and of a reddish colour, not livid. The eyelids, nose, and upper lip were particularly tumefied. When the eyelids and neighbouring parts were cut into, the cellular tissue of them was filled with coagulated blood. The eyelids were completely closed. There was blood under the conjunctiva of the eyes, and the extravasation of blood extended to the temples and forehead. The vessels of the conjunctiva were much distended with red blood. On the upper eyelid, and situated towards the temporal angle of each eye, there was a small superficial wound; both of these wounds could not therefore have been inflicted at once by a fall upon a flat surface. There was a small effusion of clotted blood on the convolutions of the brain which were situated on the transverse orbital plate of the right eye. There was also the mark of a severe contusion upon the nose, but no bones were fractured. The face looked altogether like that of a man severely contused in fighting.

" The brain was not unusually distended with blood. No fracture of the skull at any part.

" The lungs were healthy and soft; but they seemed to be of a more livid colour than natural, and their vessels were filled with venous blood. The lungs were distended with air. The trachea contained frothy mucus, but no water.

" The heart was almost empty; the right side was particularly empty and flaccid. It contained no large coagula or fibrin, but some semifluid blood.

" Both cavities of the chest contained a considerable quantity of watery fluid.

" The viscera of the abdomen were natural. The stomach contained about six ounces of watery fluid, which had no saline taste.

" The blood-vessels of the bowels were more full and distended than usual, which gave these viscera a livid appearance.

" To form a decided and correct opinion upon this case was obviously attended with much difficulty. There were marks of violence upon the head sufficient to account for his death by concussion of the brain. The appearance of his face, the state of the lungs, and other parts, likewise afforded indications of death by drowning, and that his body had been immersed in the water for several days.

" Taking all the circumstances of the case into consideration, I reported to the Sheriff of the county that there existed marks of violence, inflicted before death, on the head, sufficient to account for his death, though not of a nature to have necessarily proved immediately fatal; but from there being also several of the signs of suffocation present, such as are observed in drowned persons, that he might have been immersed in the water before death.

" I also reported that the above-mentioned injuries seemed much more probably to have been inflicted by another person than by accident. That they might have been occasioned either by the fist or by a bludgeon, but most probably by the former, as no bones were broken.

" In the investigation of this case afterwards made, the deceased was ascertained to have fought with a man in Leith, two or three days previous to his having been found dead on the shore. It was ascertained that he had been afterwards drinking at a public-house. After this it is supposed that, in attempting to go on board of his ship, which was lying in Leith Harbour, he had fallen into the water and been drowned. If this is the manner in which he came by his death, his body must have been washed out by the ebbing tide, during the night, from the harbour, and, with the flowing of a subsequent tide, carried up to the place where the body was found.

It is also obvious, that the appearances found on dissection completely tend to confirm the above view given as to the manner of his death.

"If none of the intrinsic appearances of drowning are present, and more particularly if the blood is found coagulated in the heart, we may conclude that death has not been occasioned by drowning. From other marks of violence found upon the body, we may get important evidence as to the nature of the case. But in order to prove that these injuries were really the cause of death, it is necessary to shew that they could not have happened after death; and, secondly, That they could not have happened by the body striking the side or bottom of the pool in falling into it. Ecchymosis at any part, and effusion of blood upon the clothes of the deceased, when they exist, must have happened before death, and must have required some interval for taking place. The injuries present may also have been such as to have occasioned instant death, and so prevented the person from stirring from the spot.

"Marks of injury on the body, however, are not always to be considered as unequivocal evidence of their being the work of another person; for suicides have attempted their lives by other means, in some cases, before leaping into the water."—Pp. 158–164.

The general remarks on drowning would require to be remodelled, and several errors rectified. The author speaks of a square inch of lead being heavier than a square inch of water, when a little reflection might have shown him that there is no such thing *in rerum natura*, as a square inch of either. He evidently enough means a cubic or solid inch; but has been misled by the vulgar use of the word square, which is invariably employed by uneducated persons to denote what is really cubic or solid.

In the ninth chapter, *on the circumstances which modify the medico-legal character of Wounds and other Injuries*, the author follows nearly the method of arrangement observed by Dr Christison in his Syllabus of Lectures on Medical Jurisprudence. The practical illustrations given by Mr Watson are, however, instructive and valuable.

The tenth chapter, *on the medico-legal examination of Wounds*, presents a skilful and attentive view of the subject, and contains several apposite cases in illustration of some of the most obscure questions.

In the twelfth chapter, *on the exculpatory plea of Insanity in cases of Homicide*, are found some interesting illustrations of the question, as to the influence of insanity in urging to homicide, to murder, and to suicide, of the modes of ascertaining the existence of this state of the mind in doubtful cases, and of the grounds for establishing and admitting the plea of exculpation. The chapter is necessarily short, and thereby not very complete; but, so far as it goes, it must be useful in directing the attention of medical men to this important and difficult subject. Some of the cases it will be impossible to peruse without concluding, that we are still in want of some good and easily applied tests, by which to establish the sanity or insanity, and the moral responsibility or irresponsibility of persons charged with the commission of several atrocious crimes. Thus it is manifest, that, though Mr Watson maintains that Waters, who stabbed his own son to the heart, has been quite sane ever since the commission of the deed,—yet it was perfectly right to prevent him from being found guilty of murder; and it must have been merely a second murder to have allowed such a sentence to be pronounced or carried into execution. Conversely, it always appeared to us that the man Howison, who was condemned and executed, and whose case is given in the present chapter, was deprived of life on quite inadequate grounds. It is true he committed a most atrocious murder; but it is also true, that he gave on various occasions evident proofs of weak and disordered intellect. It was even stated, that he expressed his own opinion that he was in bad health, and that he thought he would be much better after being hanged. Such a sentiment could never be seriously uttered by any sane person.

The melancholy case of Captain Moir is another proof of the indifference of the law to the state of the mind of the alleged delinquent.

It is painful to think that the law has been so often made the means of committing judicial murder, in consequence of incorrect or imperfect notions on the state of mind of the perpetrators, and the true essence of crime. The only method of counteracting this evil would be, in all cases where there is even the slightest doubt, to give the accused the benefit of the *non-liquet*; and, in order to prevent the repetition of similar scenes of bloodshed, to keep the individual in secure confinement, either for a period of years, or for life.

This subject is so important, that we cannot quit it without adverting to the vagueness and unsettled nature of the ideas both of professional men and of the public on the exact amount of derangement which renders a man unfit to be at large. The dreadful occurrences at the Ville of Dunkirk in Kent, on the 31st of May last, arising out of the conduct of the madman Thom, show the urgent necessity of having steps taken to put a stop to this abuse of allowing madmen to roam at large. The plausibility of the manner of this person, and his alleged insinuating behaviour, have been all adduced to show that his mind was quite sound. This only proved the incapacity of the individuals who pretended to give an opinion. Thom ought never to have been liberated, or at least he ought to have been kept in a situation so secure, that he could neither have acted on the fanaticism of others, nor done direct injury by giving loose to his own unruly passions. Had this been done, the peasantry would not have been deluded to their destruction; they never could have been tempted to resist the constituted and local authorities; nor would the melancholy and wholesale sacrifice of human life which took place have occurred.

Occurrences like these show either the defective state of the legislative enactments, or the incapacity of those whose duty it is to carry them into effect. Yet such is the infatuation and blindness of those in authority, and so little respect is paid to science, judgment, and caution, that, whenever any member of the medical profession attempts to bring these matters directly under their notice, if he receive a civil answer, which means nothing, he may think himself lucky, truly fortunate if he finds he escapes censure, and most felicitous, if his suggestions are adopted, and he is deprived of any merit they may possess.

We would recommend both the professed lawgivers and the law guardians to peruse the twelfth chapter of the present volume with serious attention.

ART. V.—*Flora Medica; A Botanical Account of all the more important Plants used in Medicine in different parts of the World.* By JOHN LINDLEY, Ph. D. F. R. S., Professor of Botany in University College, London, &c. London, 1838. 8vo. Pp. 655.

MOST persons who have much communication with medical students will agree in the sentiment expressed by Mr Lindley, that those employed in teaching botany have experienced great inconvenience from the want of some work containing correct systematical descriptions of medicinal plants, and which might at the same time be sufficiently moderate in price, to be used as a class-book. There is indeed at present no work possessing all those conditions requisite to recommend it to the use of the student; for, independent of most of the *Floræ Medicæ* being too bulky and expensive, there is none excepting the *Flore Medicale* of Richard, in which the descriptions are so recent as to place the work on a level with the present state of botanical knowledge.

Such a work would require to embody all the rectifications and new distinctions in classification, terminology, nomenclature, and description, which have been introduced by the successive labours of Persoon, Humboldt and Bonpland, Nees von Esenbeck, and Ebermaier, Brown, Hooker, and De Candolle. That this is no easy task, we are willing to admit. That it is indispensibly requisite we must decidedly maintain. We have had occasion to specify before this time, for want of a good English work of this kind, various botanical errors in the writings of authors on Materia

Medica and Practical Medicine. Such, for example, are the custom of confounding, under the general name of *Cinchona*, the *Exostema* of Persoon, the *Exostemma* of Bonpland and De Candolle; the usual practice of applying to the Iceland moss the vague name of Lichen, when it was distinguished long ago by Acharius as a *Cetraria;* and the general errors regarding the myrrh tree, (*Amyris Kataf* of Forskal, or *Protium Kataf* of De Candolle and the present author.) Often have we had occasion to observe the inaccurate manner in which many otherwise well educated persons speak regarding plants, especially those having a place in the *Materia Medica*, or the *Materia Alimentaria;* often have we felt the difficulty of impressing on the minds of pupils any clear or permanent idea of the distinctive characters of the objects intended; and have thought what a service would be rendered to the student by some active and well-informed botanist, sufficiently acquainted with medicine, undertaking the task of compiling a work containing correct and precise descriptions of all the principal plants, furnishing articles used in medicine.

In the midst of these reflections the present work came to hand some time ago; and seemed, on a cursory and general view, well calculated to supply the want we had so often felt. With this cursory view, however, we did not rest contented; and since the period the work has been in our hands, we have not failed to examine it repeatedly with care, to peruse attentively most of its articles, and to subject it to the best test by which the merits of a work of this nature can be estimated, to wit, frequent consultation on many doubtful questions in botanical distinction and nomenclature.

So far as we have hitherto examined this work, we must pronounce it as embracing all the conditions requisite, in our estimation, to fulfil the character of an excellent system of medical botany, and eminently calculated to serve as a guide to the student. The denominations of plants are given according to the most recent and improved methods of arrangement and nomenclature; at the same time that the author gives the synonyms of previous or contemporary botanists, and the indigenous names of those plants known in their habitats to the natives of the countries, where they grow. The descriptions are all given fully, accurately, and according to the most improved system of terminology. The chemical constitution and the physiological properties are also well described, though in the latter respect, and sometimes in stating therapeutic effects, the author betrays a degree of confidence, and perhaps credulity, which might have on some occasions been better placed elsewhere.

In fixing on a suitable method of arrangement, Mr Lindley has evidently encountered some perplexity. Inclined to the natural method of arrangement, he has hesitated between the plan of Jussieu, that of De Candolle, his own method, that of Endlicher, of

Von Martius, and of Schultz. To obviate the objections liable to be urged against each and all of them, and to enable the reader to suit his own convenience in the arrangement of the materials, the work is printed in such a manner that the different natural orders may be cut asunder and arranged anew at the pleasure of the possessor. This the author has in the present edition attempted as an experiment,—to be abandoned or retained in future editions as circumstances shall suggest.

We believe that this mode of procedure, singular as it may seem, is the only mode of obviating the objections which are applicable to close adherence to any individual method of arrangement. The difficulties of the task we know well; and we are also aware that, slight and trifling as these difficulties appear to one imperfectly or superficially acquainted with the subject, they increase in number and magnitude the more it is studied, and the more carefully the different families and genera are examined and compared. To some the distinctions of De Candolle appear unnecessarily minute and refined, and almost every new traveller has some error to rectify, or some change to propose. In this state of botanical science the impediments to perfect arrangement are manifest, multiplied, and almost endless. But it is to be hoped, that, when the accurate and precise distinctions of botany, as at present cultivated by Hooker, De Candolle, Arnott, and the present author, become general, these discordances will disappear, and a lucid method be at length a practicable achievement.

His account of the Cinchonas is full, accurate, and given with much judgment. Mr Lindley is perhaps too severe upon the venerable and estimable Mutis, to whom botanists were indebted for the first information regarding these important trees. He scarcely seems to allow sufficient merit also to Lambert and Persoon, the first of whom gives evident proof that he was aware of the peculiar differences between the true Cinchona and the Caribbean tree, which was, by Wright and others, confounded with it; while the latter was the first person who separated it under the name of *Exostema*, in consequence of the stamens being prolonged beyond the *corolla*, from the genus Cinchona.

It would be idle, however, to enter into any details on the merits of this work, or the occasional deficiencies, which are very few and unimportant. We prefer directing the attention of the student to the general value of the work, as an instructive guide in the acquisition of botanical knowledge, to the correct descriptions given of medicinal plants and articles obtained from them, to the great labour, research, and industry of the author, and to his anxiety in rendering the information full, satisfactory, and precise; and we conclude by saying, that the student will find in Mr Lindley's work all that can be desired in a treatise on medical botany.

Art. VI.—*The Flora of Jamaica; a Description of the Plants of that Island, arranged according to the Natural Orders: With an Appendix containing an enumeration of the Genera according to the Linnæan System, and an Essay on the Geographical Distribution of the Species.* By James Macfadyen, M.D., Vol. I. *Ranunculaceæ—Leguminosæ.* London, 1837. 8vo. Pp. 351.

Though the work of which the present forms the first volume be not completed, and hence is not in that state in which we usually take critical notice of publications, we are disposed in the present instance to deviate from our ordinary practice for two reasons; *first*, because we fear that the present volume is less generally known than we feel it deserves to be; and, *secondly*, because we are desirous to give the author all reasonable encouragement, and hold out every inducement to him to complete his undertaking.

It is well known that the original work of Sir Hans Sloane, on the Natural History of Jamaica, and the work of Hughes on Barbadoes, are the chief authorities which students of botany in this country have opportunities of consulting, when studying the Flora of Jamaica and the islands of the Caribbean seas; and if to these be added the learned Civil and Natural History of Jamaica by Patricke Browne, published in 1756, we mention the total amount of scientific information to which phytological students in this country have in general access in studying the botany of the Antilles. The works now mentioned, however, though most venerable monuments of the industry of their authors, and highly interesting from the manner in which their information is conveyed, are, from the great changes effected in classification and nomenclature, since the period when these authors flourished, almost entirely useless. So obsolete are these publications in the article of nomenclature, that it is a good exercise for the student to affix to the plants described and represented by Sir Hans Sloane the names given by Linnæus and the botanists who have flourished since his time.

It cannot be denied, indeed, that the defect now specified was in some measure supplied by the *Hortus Jamaicensis* of Mr Lunan; and it is also true that, between 1824 and 1829, M. Descourtilz published a very comprehensive work on the Flora of the Antilles or West India Islands, illustrated with numerous engravings. It must be added, however, that the former work has now become scarce and almost inaccessible, and if republished, it would require to be remodelled, both as to classification and nomenclature, and would require to be enlarged by the addition of a great number of plants, which have, since the date of its appearance, been discovered to be indigenous in the island. The work of Descourtilz, it must be further observed, though comprehensive, is in many respects a work which cannot be confidently recommended as a perfect guide. It presents scarcely any methodical arrangement; the author repeats all the old errors which have been introduced since the time of Linnæus, and does not seem to be aware of the recent improvements in classification, nomenclature, and description; and the information is meagre, unsatisfactory, and often erroneous. The book is indeed afflicted with a penury of information and learning completely discouraging. Lastly, it is rather a costly book of delineations than a useful book of science.

From all the objections now urged, the work of Dr Macfadyen is in a great measure exempt. Well acquainted with the most correct methods of classification, nomenclature and description, and intimately and practically conversant with the plants of the Island of Jamaica, the author shows that he is throughout unfolding the treasures of a mind well stored with accurate botanical and medical knowledge. He appears, indeed, to have taken every means to qualify himself for composing a correct and useful work on the Flora of Jamaica. During a residence of more than twelve years in the island, he has carefully examined every plant within his reach, and compared his descriptions with those of previous botanists. " I have visited," he says, " a considerable portion of the island, so that I have had opportunities of studying the Flora of each district. The nature also of my occupation as a medical practitioner in the country has been of some advantage, as, in my almost daily rides, I have had opportunities of watching each plant during its period of flowering and perfecting its fruit. There still remains, however, an extensive and interesting field for botanical research. There are still left many plants undiscovered and undescribed, a rich reward to stimulate to exertion those who may follow in the same path. It is not the work of a single individual, even if favoured with unusual length of life, and gifted in the highest degree with mental and bodily energy, to complete a perfect history of the botany of an island like Jamaica."

The tone of the preface from which we have taken these observations, is altogether that of a modest pains-taking person, who is desirous to qualify himself thoroughly for the task which he undertakes, and who spares no labour or industry to arrive at the truth, and communicate it in a conscientious manner to others. This, we acknowledge, recommended the work to us, not less than its intrinsic merit, which is great indeed; and to us the present volume appears to be a good specimen of industry and intelligence, combined with modesty.

The arrangement adopted by Dr Macfadyen is that expounded in the *Prodromus Systematis Universalis Regni Vegetabilis*, by De Candolle, of whose writings Dr Macfadyen is evidently a great admirer, and a successful student. Convinced of the superior advantages of the Natural System of Classification, or that which arranges plants according to the natural similitudes of the different orders and families, he adopts that as the one best suited for conveying just ideas of the economical and medical relations of plants.

It will be remembered by those who have studied the method of De Candolle, that while he divides the VASCULAR or COTYLEDONOUS Plants into two sub-classes, the EXOGENOUS and the ENDOGENOUS, he distinguishes the former into the four orders of THALAMIFLORÆ, CALYCIFLORÆ, COROLLIFLORÆ, and MINOCHLAMYDEA.

This mode of division Dr Macfadyen adopts. In the present volume he has completed his account of the first two orders, the THALAMIFLORÆ, and the CALYCIFLORÆ.

Under the first division he enumerates the plants found in Jamaica, as they belong to the following orders. 1. *Ranunculaceæ* ; 3. *Dilleniaceæ* ; 4. *Anonaceæ* ; 5. *Menispermaceæ* ; 8. *Nymphæaceæ* ; 9. *Papaveraceæ* ; 11. *Cruciferæ* ; 12. *Capparideæ* ; 14. *Bixineæ* ; 16. *Violarieæ* ; 18. *Polygaleæ* ; 22. *Caryophylleæ* ; 24. *Malvaceæ*; 25. *Bombaceæ* ; 26. *Byttneriaceæ* ; 27. *Tiliaceæ* : 30. *Ternstræmiaceæ* ; 31. *Camellieæ* ; 32. *Olacineæ* ; 33. *Aurantiaceæ* ; 34. *Hypericineæ* ; 35. *Guttiferæ* ; 36. *Marcgraviaceæ* ; 37. *Hippocratiaceæ* ; 38. *Erythroxyleæ* ; 39. *Malpighiaceæ* ; 43. *Sapindaceæ* ; 44. *Meliaceæ* ; 45. *Ampelideæ*; 49. *Oxalideæ*; 50. *Zygophylleæ*; 51. *Rutaceae* ; 52. *Simarubeæ* ; and 53. *Ochnaceae*.

Among the division of CALYCIFLORÆ we find the plants of Jamaica belonging to the following orders described, the numeration being embraced from the commencement. 55. *Celastrineæ* ; 56. *Rhamneæ* ; 58. *Samydeæ* ; 59. *Homalineæ* ; 62. *Terebinthaceæ* ; and 63. *Leguminosæ*.

From the proportion included under each family, it appears that, so far as Dr Macfadyen has hitherto gone, the most abundant families in Jamaica are above all the *Leguminosæ*, and next the *Malvaceæ* and the *Terebinthaceae*.

The descriptions of the individual genera bear evident proofs of great accuracy and precision. The medical observations and the economical histories attached to such plants as are employed in medicine, or used in the arts, and therefore become objects of commercial importance, are interesting, and, though not new, are always instructive.

A few errors we observe with some astonishment, because by a little care they might have been prevented. Thus, we are astonished to see the author spelling *Xanthoxylum* with the Z, (*Zanthoxylum,*) at the very instant that he tells the reader it is compounded of ξανθος, yellow, and ξυλον, wood.

Upon the whole, we recommend this work as an interesting accession to the library of the tropical botanist; and we are sure that we express the sentiments of all intelligent cultivators of natural science, when we say that we shall wait with impatience for the second volume, and the Essay on the Geographical Distribution of the Species.

ART. VII.—*A Treatise on Ruptures.* By WILLIAM LAWRENCE, F. R. S., Surgeon Extraordinary to the Queen; Surgeon to St Bartholomew's Hospital, and Lecturer on Surgery at that Hospital, &c. &c. The fifth edition, revised, corrected, and considerably enlarged. London, 1838. 8vo, Pp. 632.

THE treatise on Ruptures by Mr Lawrence we always regarded as by far the best and most convenient in the English language for enabling the student to form a clear idea of the anatomical causes, the mechanism, and the pathological peculiarities of the different forms of hernia. This opinion was founded on the most unerring test. Of the accuracy of the anatomical descriptions we became convinced by using it as a guide in the dissecting room; and the general fidelity and correctness of the pathological distinctions we have often verified in the examination of cases of hernia which had terminated fatally.

This opinion we may maintain without disparagement to the elaborate treatises of Scarpa and Sir Astley Cooper. Each of these have their peculiar merit, more especially in unfolding with great clearness the anatomical peculiarities and the mechanism of the different forms of the disorders; and no accomplished surgeon would choose to undertake the practice of his profession without studying these standard treatises with the greatest care. This, however, we must say, that neither of them are well adapted to the perusal of the beginner in surgery. The treatise of Scarpa, even in the translation of Mr Wishart, is not very intelligible at the first, and requires, in general, a second and third perusal before it is possible to frame a distinct idea of his descriptions. The magnificent work of Sir Astley Cooper is much more intelligible, but it is beyond the reach of the student, who, in general, is obliged to procure his information through the medium of mere elementary treatises.

The peculiar advantage of the treatise of Mr Lawrence has always appeared to us to be, that he explains his views on the anatomy of hernia and the different varieties of the disease in a manner which renders his book peculiarly useful to the student. Beginning with the most simple, he explains in a very methodical and perspicuous manner each form of the disease, as they increase in complexity. In the course of this explanation we may safely say, that no one could with greater judgment have availed himself of the researches of preceding and contemporaneous authors, in illustrating the history of the anatomical and physical circumstances concerned in the production of hernia, and elucidating the pathological peculiarities of each form of the disorder. In five successive editions Mr Lawrence has, with great judgment and industry, introduced all the information communicated not only by Camper, Scarpa, Cooper, and Colles, but the more recent researches of Hesselbach, Langenbeck, and Cloquet, and all those authors by whom the subject has been more or less industriously investigated during the last twenty-five years.

The great and peculiar merit of this work, indeed, is this, that the author carefully introduces in its proper place clear accounts of the researches of every inquirer, gives a just and candid estimate of their value, confirmed or modified by the result of his own inquiries, and presents the reader with a most accurate view of the present state of surgical information on hernia. The treatise of Mr Lawrence, composed in the manner and upon the principles now specified, is doubtless the most comprehensive treatise on hernia extant; and contains all the information which the surgeon requires to possess on the nature and causes of hernia, and the most approved methods of treatment. It does not, however, supersede the necessity of studying other treatises, as the writings of Camper, Scarpa, Cooper, Hesselbach, and Langenbeck, but it will form the easiest and most effectual introduction to the subsequent study of these writings.

After the character now given of the work of Mr Lawrence, it must be superfluous to express our opinion of its value to the surgical practitioner. As a treatise on hernia presenting a complete view of the literature of the subject it stands in the first rank; and for the surgeon who does not make it his incessant and intimate study, it must be impossible either to think correctly or to act with judgment and decision in those cases, always difficult and complex, in which it becomes requisite to operate on a strangulated intestinal tumour.

ART. VIII.—*The Works of John Hunter, F.R.S. with Notes.* Edited by JAMES F. PALMER, Senior Surgeon to the St George's and St James's Dispensary; Fellow of the Royal Medical and Chirurgical Society of London, &c. In four volumes 8vo, illustrated by a Volume of Plates in Quarto, Vol. iii. and Vol. iv. London, 1837.

SINCE we last directed the attention of our readers in our forty-eighth volume (No. 132,) to the appearance of the first and second volumes of this publication, the third and fourth, which conclude the work, have appeared; and the profession have now before them, in a collected form, the whole of the written remains of Mr John Hunter, which escaped the injudicious proceedings of Sir Everard Home.

The third volume contains the treatise on the blood, inflammation, and gunshot wounds; the essay on inflammation of the internal coat of veins; the papers on intus-susception; that on the Hunterian method of performing the operation for the cure of popliteal aneurism, as published by Sir Everard Home; the case of palsy of the pharynx and œsophagus; the observations on loose cartilages within the joints, especially the knee-joint, as published by Sir Everard Home; and the observations on horny excrescences, as published by the same.

Of these we shall speak first of the treatise on the blood and inflammation. This is the production, to which there is is no doubt Hunter himself attached most importance, and which has hitherto of all his writings been generally believed to be most strongly impressed with the marks of the originality and genius of the author. Whether these notions be well founded or not, our limits will not permit us to inquire. It is enough to say, that, confused and unmethodical as its arrangement is, and careless and rugged as the style often appears, and, notwithstanding frequent obscurity in thought, it contains a larger proportion of original matter in the way of observation and remark, than any work of the same compass on the subject. It forms also the basis of all the modern treatises; and contains the germs of the pathological doctrines by which modern surgery is most happily distinguished. Nor is it a work alone for the surgeon. No physician can well understand his profession without being intimately conversant with the facts and principles there promulgated. Its distinguishing merit, indeed, consists in the exposition of great general physiological and pathological principles, and their application to explain the phenomena of disease in all the textures, without regard to the distinctions of physic and surgery; and hence the treatise of Mr Hunter must ever be regarded as alike useful to all who wish to form correct notions of the nature and effects of the inflammatory process.

Instructive, however, as this treatise is, and rich in all the most important and necessary principles of scientific pathology, there are numerous points on which it cannot give all the information requisite to the physician or surgeon of the present day. Independent of the comprehensive and methodical treatise of our townsman, Dr Thomson, the useful work of Mr James, and the treatise of M. Gendrin, various monographical essays, rational or experimental, have been published by Black, Wedemeyer, Kaltenbrunner, Koch, Schroeder van der Kolk, and others of inferior note. By a numerous body of observers also various inquiries have been made on the constitution of the blood in health and disease; and indeed on every subject comprehended under, or relating to, the inflammatory process and its effects, multiplied researches have been made, the results of which require to be known to the pathological student. It is also to be observed, that though, in many instances, these inquiries have not been attended with actual additions to, or modifications of, the prevailing doctrines on inflammation, of that circumstance it is not less requisite for the reader to be apprised, than if very great additions or considerable rectifications had been effected.

Perfectly aware of these circumstances, the editor, in introducing to the profession a new edition of Hunter's great undertaking, felt, that, while it was requisite to preserve in the most sacred integrity the whole of the matter of the author, it was not less requisite to inform the reader as he went along, of all the additions, rectifications, and modifications which had been suggested by the incessant labours of forty-five years. With the view of fulfilling this desirable object, Mr Palmer has not only undertaken and accomplished a most laborious task, but he has in its performance shown a rare union of industry and judgment. He has not only shown the reader, by numerous notes under each part, where information was doubtful, erroneous, or insufficient, the actual progress made, and given in this manner, a correct view of the present state of information, but he has enriched the work with a copious and correct bibliographical list of the best writings previous to the time of Hunter, and various writings which have appeared since that time, on the subject of inflammation, and the state of the blood, and also on the subject of gunshot wounds. These services cannot fail to be of great advantage to the reader, who is thus put in possession of the means of prosecuting his inquiries to whatever extent he chooses.

Of the rest of the papers completing the volume we need say nothing. Their merits are very well known. Where their contents are behind the present state of knowledge, Mr Palmer has supplied the defect, by stating, from the best authorities, the requisite information.

The fourth and last volume contains the series of memoirs, which, though at first mostly published in the Philosophical Transactions, were afterwards collected first in 1786 and again in 1792, and sent before the world under the name of Observations on certain parts of the Animal Economy.

It is well known that these papers relate to various subjects on Comparative Anatomy and General Physiology. In preparing this part of the works of Mr Hunter for the eye of the profession, Mr Palmer has had the good fortune to secure the appropriate and valuable aid of Mr Owen, whose long and intimate acquaintance with the contents of the Hunterian Museum, and whose habitual occupation in zootomical researches, rendered him peculiarly well fitted for the undertaking. The good effects of this arrangement appear throughout the volume.

In a preface, exceeding the usual length of that class of compositions, and which would be tedious were it not interesting, Mr Owen takes a view of the labours of Hunter in the department of general and comparative anatomy, shows how far he had preceded all his contemporaries in the diligent elucidation of the most intricate and obscure structures, how ingenious were his conjectures, how powerful his faculty of anticipating generalization. This preface we recommend to the perusal of all those who may have hitherto known the life and writings of Hunter imperfectly, or who may, from his eminence as a surgeon and pathologist, have thought that his talents were confined to that alone. It is also valuable for showing how frankly one eminent comparative anatomist explains the merits of another.

To the individual papers of which the volume is composed, Mr Owen has added, in the form of notes, various observations illustrating the subjects of the memoir, and showing the present state of facts in each. In all these annotations the reader will find much valuable information.

As the subjects of the first three volumes are something different from those of the fourth, the work is closed with a double index, one for the contents of the first three volumes, another for that of the fourth. Both are minute and accurate, and will contribute much to facilitate consultation on any given subject treated.

This short notice of the appearance of the works of the great English physiologist we give in the present form, to induce the junior members of the profession to study carefully the facts observed, the thoughts entertained, and the doctrines taught by one whose originality appeared in every thing he undertook. Of such a publication it would be absurd to attempt either analysis or review. It has often, however, occurred to us that a general view of the Treatise on Inflammation, with a comparative sketch of the progress of pathology in this department of medico-chirurgical knowledge, might furnish matter for reflection both curious and useful. This neither time nor limits will at present permit us to attempt. But, if amidst the press of matters which daily claim attention, we shall feel that we can accomplish such an undertaking in a manner worthy of the subject and its author, we shall endeavour to explain, as far as our abilities allow, the views of Hunter, and to show in how many points he has been the first promulgator of many doctrines which now constitute the true system of pathological science.

Art. IX. *Counter-irritation, its principles and practice, illustrated by one hundred cases of the most painful and important diseases, effectually cured by external applications.* By A. B. Granville, M. D. F. R. S. &c. 8vo. London, 1838. Pp. xvi. and 360.

Dr Granville states that the volume now before us contains the result of nine years experience and meditation on the subject of counter-irritation, which he has illustrated by a selection of cases. He has performed his task in a popular, rather than in a professional manner, addressing himself to the general reader rather than to his brethren, not for the purpose of rendering the former independent of the latter, but "to make the public feel that it will be to their interest hereafter, (seeing the mass of stringent evidence contained in the present volume, purposely written for them,) to encourage their medical attendant to act, on all necessary occasions, upon the principles of counter-irritation, instead of prescribing endless pharmaceutical compositions; and, above all, to prevail on him to have recourse to those more potent and successful counter-irritants, the value and nature of which it is the object of the present volume to describe." This principal object seems thus to be to bring counter-irritation into fashion, as a remedy in a large class of diseases of common occurrence, though at the same time we must admit that the work contains facts which will be of use to the general practitioner.

The volume is divided into two parts, the one containing an account of counter-irritants, the mode in which they are applied, the extent to which they may be carried, and the cases to which they are adapted; the other comprehending a detail of one hundred cases which Dr Granville has selected to exemplify and support his doctrines.

In the first of the nine sections into which the first part is divided, Dr Granville enters into an examination of the meaning of the terms counter-irritation, revulsion, and derivation. The term counter-irritation is of comparatively recent adoption, and is generally employed in the same sense as revulsion, the use of which it has, to a considerable extent, superseded.

"The history of the origin of the term itself contains the most comprehensive explanation of its etymology. When certain disorders, according to the view of some prevailing system of medicine, are supposed to depend on *irritation*, * * * and when it is found that the excitement of a somewhat similar *irritating* action, on another part of the body, by artificial means, cures the original disease dependent on *irritation*;—the action by which the disorder is removed receives the name of COUNTER-IRRITATION."—P. 2.

As it was found not to be necessary that the artificial irritation set up to cure the natural should be induced on or near the suffering part, but, on the contrary, to be frequently preferable that it should be excited at a considerable distance from it, those physicians who looked to the fluids of the body for an explanation of every morbid symptom, attributed the benefit derived from this mode of treatment to a diversion of the current of morbid humours from the affected part, to that artificially excited where they were drawn out. In accordance with this view, the term *revulsion* was adopted.

"In this limited sense, the term revulsion would only explain and account for the recovery of those disorders in which there is really a something to 'draw out' (revellere); and therefore would, if applicable at all, have but a limited application. Another term, therefore, was added to medical language, to denote those cases in which humours were not drawn out, but only made to change position, as in the case of *dry cupping*, where a force is employed to direct a certain portion of fluids from a part of the body which they seem to overpower with their presence, to that point of the surface of the body to which the instrument is applied. The term I allude to is 'derivation.'"—P. 4.

Dr Granville next proceeds to show that all the three terms are individually and collectively deficient in correct meaning and just application, and that, whichever we may adopt, we must employ it "as giving only an idea of the means we may propose using in the treatment of certain diseases, but not as explaining or accounting for, in a satisfactory manner, the peculiar * * * agency, through which the cure is effected." It is, therefore, perhaps a matter of indifference which term we employ.

The second section is devoted to the consideration of the mode in which counter-irritation, revulsion, and derivation act, of which the author thus expresses his views.

"Our knowledge on this subject, amounts to this and no more. A disease which is supposed to be caused by undue excitement of any specific part of the body, it matters not whether it be internal or external;—or by an exaggerated sensitiveness of that part, which is a second degree of intensity in the exciting cause;—or by a positive irritation, which is a third degree of intensity in that cause;—or lastly, by inflammation even, which is the highest degree of intensity;—a disease so excited may be often cured, sometimes entirely, at other times only partially, by producing undue excitement—exaggerated sensitiveness—positive irritation—and, finally, inflammation—in another and distinct part of the body. This mode of medication is called the cure of diseases by counter-irritation; the *immediate* effects of which we know to be one or more of the morbid symptoms, just enumerated, and its *remote* effect we hope, and very often do find, to be the cure of the disease. But of the manner in which either the immediate or the remote effects are produced, either the morbid symptoms excited or the cure effected, we are totally ignorant."—P. 13.

In the third section Dr Granville considers in what counter-irritation consists, together with its phenomena and various degrees. Artificial counter-irritation is stated by him to consist in a particular change or deviation from the natural state of a given part of the body, brought about at pleasure, by means of some known substance or mechanical agent applied to the part, and to be always accompanied by excitement.

The phenomena of counter-irritation are of two kinds, those which manifest themselves in the part to which it is applied, and those which take place in the part morbidly affected in consequence of the local effects. The former are stated by the author to be increase of circulation in the part; 2. greater influx of humours towards it, which will partially remain and dilate the vessels; 3. extrication of heat; 4. redness of the skin; 5. pain; 6, progressive inflammation; 7. vesication or ustion, or destruction of the skin, and sometimes of the tissues under it; and 8. serous or purulent secretion from the part, and sometimes sloughing. These of course will vary according to the constitution of the patient, the nature of the part to which the counter-irritation is applied, and the species of the counter-irritant. All of them, however, may be expected to occur in the order in which they have been enumerated, under the influence of almost any counter-irritant, though to produce complete counter-irritation it is not necessary that the whole series should occur.

"The phenomena of the second order, namely, those which have been observed to take place in the organs morbidly affected, when counter-irritation is induced on the surface of the body, to cure them, while the counter-irritants are in action, are, 1. a diminution in, or a total suspension of, the existing increase of circulation in the diseased organ; 2. The withdrawal from that organ of the excess of tumours which had been flowing towards it, and the dispersion of the stagnant fluids; 3. A progressive decrease of redness, heat, and inflammation; 4. A reabsorption of serous or purulent morbid secretions already formed, after the arrest of these ulterior formations; and, 5. The gradual, though slow destruction of morbid and unnatural growths, enlargements, and tumours, in the organs affected, the result of inflammation or other causes. It is hardly necessary to remark, in this place, that in enumerating these salutary phenomena, as the secondary products of counter-irritation, in acute as well as chronic disorders,—we ought to guard ourselves against supposing that, in every such case of disease, effects like those just mentioned, and in the same regular succession, may always be expected to take place. On the contrary, instances will occur in which one only, or two, of those salutary effects can be produced; in other instances three or the whole of them; and in a few cases none."—Pp. 22, 23.

In the fourth section the author explains the conditions necessary for the successful production of counter-irritation, and points out the circumstances in which it may be employed. The conditions are, 1. That no other method of cure is likely to be equally successful; 2. The employment of a weaker, rather than a stronger counter-irritant, when the former will be sufficiently effective; 3. A previous knowledge of any peculiar susceptibility of the patient to the action of counter-irritants; 4. A perfect knowledge of the nerves and absorbents of the part intended to be acted on; and 5. A judicious choice of the part to be subjected to counter-irritation. This mode of treatment will be found useful and generally successful in removing diseases which affect the solids, and little, if at all, applicable to disorders of the fluids.

In the fifth and sixth sections Dr Granville discusses the various means resorted to produce and maintain counter-irritation, with most of which our readers must be well acquainted. We beg, however, to call their attention to the agents employed by the author, to which he has given the very imposing but, as we shall show, unmeaning name of *antidynous lotions.*

"The species of instantaneous action, required from any external application, is that which, * * * while it apparently gives rise to no more than the ordinary phenomena of counter-irritation, produces at the same time on the disease under treatment a peculiar and wished-for effect, seemingly dependent on the instantaneous transmission of the counter-irritating influence, from the seat of the counter-irritant to the seat of the pain. Such an action was not, to my knowledge, to be found in any of the hitherto known counter-irritants. This deficiency induced me, about nine years ago, to study more minutely the effect of particular agents on the skin, especially such as belong to the ammoniated or spirituous class, with a view of endeavouring to discover some combination of them, which should give rise to an instantaneous and powerful action on any disease, likely to be benefited by counter-irritation, even before the part itself, on which the external application was laid, could feel its disturbing effects. Some personal experiments made on myself, in the first instance, with simple as well as compound preparations of ammonia, spirits of wine, vegeto-aromatic spirits, camphor, and other stimulating and evaporable substances, differing from the few preparations already in use, and combined with water, or with oils, or butyraceous vehicles, or saponified into cerates,—which experiments were afterwards repeated with the greatest success on some of the patients of two of the public medical institutions I belong to,—led me to the knowledge of the fact, that, by merely regulating the several proportions of these ingredients, according to the nature and intensity of the case we have to treat; and, what is even more important, by mixing those proportioned ingredients in a particular order, instead of at random (paying due attention also to time), combinations of a more powerful kind than usual could be obtained. I found, in fact, that without charring the skin, or producing an eschar, such combinations would, on a mere application to the external surface of the body, give rise to peculiarly energetic effects on the disease, in the brief space of a very few minutes (sometimes seconds only), without necessarily at the same time producing rubefaction, vesication, and cauterization; although, if sufficient time for the purpose were allowed, the same combinations would produce the latter phenomena also, besides the mere first impression."—Pp. 50—52.

From his conceiving the nature of the first impression to be the instantaneous removal of pain, he bestowed upon this class of counter-irritants the name of *antidynous.* The permanency of these effects depends on the nature of the affection for which they are employed. For instance, in neuralgia depending on organic disease of the brain or nerves, the pain is merely suspended for a time, while, if it be the consequence of sympathetic action between certain organs, the relief is permanent. Besides allaying pain, Dr Granville states that they will raise, in a few minutes, vesication equal to that produced by the best blistering ointment, after several hours' application, or by scalding water, while the pain will be both less intense and of less duration. The peculiar action exerted on the body by these applications, he does not attempt to explain. He hazards the conjecture, however, that these agents may deaden the papillary terminations of the nerves, and, as the pricking or irritating of the extremity of a nerve gives rise to pain and irritation at its other, so when the one extremity of a nerve is deadened by an external application, the effect extends to the other where the morbid feeling exists. This is by no means a satisfactory explanation.

The seventh section is devoted to a detail of the diseases in which the author has employed his antidynous applications. Of these he has given a list of twenty-two, for which we must refer the reader to the work itself.

In the eighth section the author shows the danger of speedily putting an end to old sores and discharges, and points out what he conceives to be the particular advantages of counter-irritants, and especially of his antidynous applications in the treatment and prevention of diseases. The first advantage is, that its efficacy is soon tested; the sensible effect is immediate and salutary, relieving and generally curing the disease. The second is the speedy manner in which the likelihood of its proving successful is demonstrated to the patient, so that neither he nor his medical attendant are kept long in suspense as to the result. Dr Granville asserts, that, with the exception of cases of chronic rheumatism, tracheitis, bronchitis, incipient consumption or inflammation of a long duration, all other complaints which came under his notice, and were susceptible of being treated by counter-irritation, were immediately relieved, and most of them cured after a few applications. The third advantage lies in the certainty that the constitution of the patient can never be damaged by the treatment.

The ninth and last section of the first part is devoted to what Dr Granville considers ought to be the rules for the application of the antidynous or ammoniated preparation, either as specific or ordinary counter-irritants. In the choice of the place to which they are to be applied, we must be guided not merely by the connection of the affected organ with the skin covering it, but by the sympathy which it may have with other parts. In respect to the choice of time and the length of time any counter-irritant is to be applied, the author has found from experience, that the sooner the application is made, the more quickly and surely is the good effect obtained. The duration of the application should not exceed eight minutes, and he has often found that less than one minute was sufficient to alleviate pain and spasms. To excite vesication or cauterization ten or twelve minutes are necessary, and, in some rare instances, he has seen it requisite to bind the external application to the part, and leave it on till it was dry, which soon takes place, in consequence of the volatile nature of the lotions. The mode in which these lotions are to be applied, and the sensations which they produce, are thus described:

"The manner of using the counter-irritant I propose is as simple as its effect is expeditious. * * * All that we have to do is, first to impregnate with the colourless and transparent liquid, either a piece of linen folded six or seven times to the size of the part intended to be covered, or a piece of thick and course flannel; and, secondly, to lay either of these on the spot, pressing on the spot at the same time, very steadily and firmly, the said linen or flannel, over which, there should be placed a thick towel doubled several times, so that not only the evaporation of the lotion may be impeded, but the hand employed in pressing the application to the part may not suffer damage from any evaporation or from contact with the liquid." After some other directions the author thus proceeds. "The operator should place his watch on the table near at hand, and observe the time employed from the first instant of the application being made. At the expiration of the first two minutes, he should raise a portion of the compress, and inspect the skin beneath it, in order that he may regulate and secure the accomplishment of which even effect of the lotion he has previously determined,—I mean rubefaction, vesication, or cauterization. * * * In this way we avoid any unnecessary prolongation of the pain produced by the lotion, as well as of its action on the skin, beyond the degree of intensity we wish and require to excite. * * * It is important to desire the patients, at almost every instant, to describe what they feel; and we should not be guided by the greater or lesser outward manifestation of pain exhibited by them, since there are many who would prefer suppressing all such manifestations. The pain alluded to, lasts but a short time after the removal of the application, and may even, if necessary, be shortened, by laying over the part thick rags of linen dipped in warm water. * * * But the word pain is hardly correct, when employed to express the peculiar sensation which is felt by the patient who submits to the action of the strongest counter-irritating or ammoniated lotion. * * * The first impression made is that of excessive coldness; presently, a pricking or tingling of the part supervenes, in all respects like that which we experience in a limb that has been 'asleep,' when the blood returns into it. This feeling, which occurs only in insulated points of the part acted upon by the lotion, soon becomes more general, until it seems to occupy the whole of the surface; and then a sense of heat in the part is substituted for the first impression of cold,—which heat and tingling increase gradually and simultaneously, until they seem to become one single sensation, approaching in its nature as near as possible to that experienced when we hold the hand close to a blazing coal fire for a minute, or rather resembling the painful feeling of a severe burn produced by scalding oil, or melting sealing wax dropped on the fingers. * * So soon as the pain of the lotion is felt, that instant the inward pain for the removal of which it was applied, is suspended, and at last vanishes."—Pp. 83–88.

The effects which are first produced on the surface by the application of the ammoniated lotions are, 1*st*, a lively crimson blush in the course of the first two minutes, the cuticle remaining tight; 2*d*, in an instant or two more, corrugation of the cuticle in exceedingly fine folds of a peculiar white opacity. These folds generally occur in bundles, which are placed apart from each other, the cuticle in the intervening spaces still remaining stretched. In the course of two or three minutes more, however, it rises sometimes like small bubbles, at other times in patches of every shape and dimension, containing a thin fluid of a pale yellowish colour. In a very few minutes more, these coalesce, and general vesication of the part takes place, like that produced by an ordinary blister. By this time the lotion has disappeared, and, if it be desirable to produce a purulent discharge from the surface, the application must be renewed.

In the after-treatment of the vesicated part, Dr Granville recommends that the cuticle should be preserved entire, in all cases where prolonged counter-irritation is necessary. This is more easily effected when the anodyne lotions have been used, than when the common blistering plaster has been applied. When the vesicle is not ruptured, he has found that the secretion increases for the first twenty-four hours, after which it begins gradually and slowly to diminish, becoming somewhat denser, and of a deeper colour, till it assumes the hue of mahogany, "and the cuticle appears pergamaneous."

"When the cuticle has either burst of itself, or has been broken or cut after complete vesication, I treat it with simple embrocations of warm water, and in some cases lay nothing over the part, except a loose piece of linen, to defend it from external impressions, if it be my intention to stop the further progress of vesication. But if, on the other hand, it is desirable to proceed to the last stage of the agency of counter-irritation, and a purulent discharge be required,—I bind over the denuded surface some clean cotton wadding, which is not removed for three or four days; when ulceration of the surface is generally found underneath. I seldom, if ever, allow of greasy applications to the denuded surface, except under peculiar circumstances."—P. 92.

Our readers may, perhaps, by this time, be anxious to learn the mode of preparing the "antidynous lotions," so strongly recommended by Dr Granville. By some strange oversight he has neglected to give any formulæ. Although this may be of little consequence in London, where his services may be always procured, it is very different in the country; and not a few of his professional brethren will be apt to attribute this omission to a desire to keep his formulæ secret,—a desire which, we are sure, cannot exist in his mind. It would be well, however, for Dr Granville to communicate them to the profession as speedily as possible, in order that patients throughout the country may avail themselves of the relief to be obtained from them, and that his observations may be corroborated by medical men in general.

Respecting the second part of the work we have nothing more to observe than this, that the cases, as narrated, bear the author out in his assertions.

We regret that we feel it requisite to observe, that Dr Granville, however skilful in compounding medicines, does not appear to understand the method of compounding words and forming terms. His new term antidynous has no meaning in any known language. It is evident that he understands a lotion that counteracts or assuages pain (αντι οδυνη;) and the term ought, therefore, to be *antiodynous* or *antodynous*. But what objection, may we ask, can he have to the good classical term *anodyne*, which was forged by more skilful name-framers than any of the modern doctors? The term antidynous is further objectionable, because it is liable to be confounded with the old term *antidinic*, applied to remedies supposed to possess the power of removing giddiness.

[Appendix to Original Communications.]

Account of a Case in which a Child was expelled from the Womb after interment of the Mother. By John Dunn, Surgeon, Scarborough, M. R. C. Surgeons; and J. Savile, Surgeon, Nafferton.

I was sent for a fortnight ago by Mr Savile, surgeon at Nafferton, to attend an inquest on a body which he had caused to be disinterred.

The woman, Mary Beckett, aged 39, had died in labour on the 18th July, after suffering severe and ineffectual pains from Monday the 16th, till Wednesday the 18th. The following history of the case was afterwards given me by Mr Savile.

" I was first desired to visit her on Friday evening, 13th July. She was in the fortieth year of her age, pale and sallow, with some hectic red in the cheeks, her legs were swelled, and her countenance indicated to a common observer that she was seriously diseased. She told me she had had attacks of flooding ever since last harvest; that she had bled for a fortnight, and then was without any hemorrhage for a fortnight alternately; she has had a little hemorrhage today, and something like labour pains occasionally to-day. I examined her, and found the *os* and *cervix uteri* dreadfully diseased, viz. tuberculated, indurated, and considerably thickened. The *os uteri* did not seem to be affected by the pains at this time. She was desired to keep quiet in bed, and, as a matter of safety, the *vagina* was plugged. She had a dose of calomel and opium at bed-time, and was directed to take a little castor oil on the following morning.

14th. No hemorrhage had occurred since yesterday. The plug was taken away. She has pain occasionally; she has slept.

15th. The pains have been rather more severe; the *liquor amnii* has come away; the *os uteri* is very little dilated. It is impossible to introduce the finger or tell the presenting part.

16th. Has slept several hours; pains continue occasionally, and then she is for a time without pains, but the abdomen is tender. She has not made urine since last evening.

The catheter was introduced twice, and some high-coloured urine drawn off. Tartar emetic was ordered in minute doses in a saline mixture. Blood was not drawn for obvious reasons.

17th. Tuesday evening. The *os uteri* is somewhat dilated, and I can with difficulty pass my finger through the diseased mass, and think I feel the integuments of the scalp some distance before the head, most likely from the bones being compressed in attempting to enter the diseased neck of the womb.

Catheter introduced twice; enema administered; castor oil given, &c.

18th. About six o'clock this morning, she had two copious evacuations from the bowels, after which she was in a state of great exhaustion; she rallied a little after taking forty minims of laudanum, with aromatic confection and cinnamon water, and small quantities of brandy and water occasionally, but died about eleven o'clock in the forenoon.

About two hours before she died, the following was the state of the parts on making a digital examination. On the fore-part of the *os uteri* was a tumour larger than a large hen's egg; on the sides and back part there were two other smaller tumours (tubercular to the feel,) and on passing the finger further into the mouth and neck of the womb, to touch the integuments of the infant's head, (which were protruded forwards before the bones,) the finger passed through a channel from two to three inches long. I am positive it would have been difficult, perhaps impossible, to have passed two fingers through this channel without the use of unwarrantable force."

The woman was buried the next day; but, in consequence of reports that she was not properly treated, and that she might have been delivered, Mr Savile caused her body to be disinterred on the 13th August, at the end of three weeks and four days afterwards.

Mr Savile had found the *os uteri* so rigid and studded with what he considered tubercles, that he never could introduce, according to his own account, more than one finger into the *cervix*. Antimonials, aperients, and fomentations, and cooling treatment were the principal resources of the obstetrician. He declined bleeding, in consequence of the great losses she had already sustained, having had uterine hemorrhages every fortnight since last harvest. Her health had, indeed, been undermined by cancer. Mr Conyers, the coroner, had sent for Mr Sandwith of Beverley to open and inspect the body.

When the corpse was laid upon the table, on placing my hand on the distended abdomen, I could not feel a child. On stating this to Mr Sandwith and Mr Smart, they were of the same opinion. The shroud which covered her was then removed, and a child of near eight months growth was lying on the thighs, the head downwards, and one foot and the funis still connected in the vagina. Most probably this child had been expelled in the grave. Two large ulcers were also observed in the neck of the *uterus* and in the back part of the vagina; the neck was perfectly relaxed; the placenta still attached to the *fundus uteri*, but the *uterus* loose and not contracted upon it,—indeed, presenting a cavity nearly large enough for the fœtus which had been expelled.

Several medical gentlemen had gone to the necroscopic inspection and inquest. Of these some argued that, notwithstanding the diseased conditon of the *os uteri*, attempts should have been made to dilate, for the purpose of applying the perforator. The great practical obstetrician of the present day, Dr Collins, is so decidedly against artificial dilatation even in healthy states of the uterus, that his authority was quoted by myself, and supported by Mr Sandwith against such a measure in so diseased a condition. The jury gave Mr Savile a favourable verdict.

It now remains to endeavour to solve the problem, how the child, which could not be removed *per vaginam* during the life of the mother, was expelled after her death. This, I believe, was owing to the resistance of the *os uteri* and *cervix* being overcome, 1*st*, by the relaxation occasioned by the act of dissolution, and 2*d*, by the collapse of the cauliflower excrescences, which seem to have been rigid and swollen during life, but were totally gone on the necroscopic inspection; and *secondly*, by the distension of the parietes of the abdomen from the gas evolved during decomposition, the *os* and *cervix* reacting upon the most yielding parts, which were now the *os* and *cervix uteri*, and thus, by their common elasticity, only expelling the child. The collapsed and flaccid state of the *uterus*, the very relaxed *cervix* and mouth, the distended abdomen, all concur in supporting this view.

That the hard excrescences totally disappear after death, is particularly remarked more than twenty years ago by Dr John Clarke in the Transactions of a Society for the Improvement of Medical and Chirurgical Knowledge, Vol. iii. p. 321.

The same fact is confirmed by his brother, the present Sir Charles Mansfield Clarke,* who had repeatedly attempted to inject them, but without success, and who found them so much shrunk in size after death, that, as is stated in the account of his work in the eighteenth Volume of this Journal, p. 481, "it was impossible to recognize any thing like a tumour similar to what had been seen during life, but merely a small loose flocculent membranous prolongation of the part to which it was attached."

Dr Davies, also, in his Principles and Practice of Obstetric Medicine, Vol. ii. page 741, observing that, on this account, "Dr Clarke could not procure a specimen for his museum, nor meet with such a specimen in the possession of any of his friends," states, that "there is, however, a preparation of a diseased uterus in the museum of the University of London, from which there had been suspended within a few months of the patient's death a true cauliflower excrescence."

On submitting this letter to Mr Savile, he has favoured me with the following remarks.

"I do not exactly agree with you as to the manner of accounting for the evolution of the fœtus. The nurse is positive as to the circumstance of the fœtus being in the woman's belly seven hours after death. During the changes which take place after death, a quantity of gas would be excreted into the internal cavities of the body. The effect of this would very likely be to drive out the child upon the same principle as a cork is driven from a bottle of ginger-beer or soda water; and this process would be greatly facilitated by the unresisting and putrid state of the parts. I have no objection to my name appearing with the above.

It may not be unseasonable to mention, that of the curious and melancholy circumstance of a child being expelled from the womb, after the death of the mother, a considerable number of cases are recorded. In a small but good dissertation published at Berlin in 1835, (De Partu post Matris Mortem spontaneo. Auctore Carolo Gustavo Maizier, M. et Ch. D. Berolini, 1835,) Charles Gustavus Maizier has collected between the year 1567 and 1694, twenty-eight cases; between 1782 and 1826, thirteen cases; and has detailed the circumstances of two more in 1818 and 1819, which occurred in the practice of his father. In the last case only had the woman been interred.—D. C.

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* Observations on the Diseases of Females, &c. Part ii. London, 1821. Pp. 66–72.

PART III.

MEDICAL INTELLIGENCE.

A short Treatise on the External Characters, Nature, and Treatment of the different forms of Porrigo or Scalled Head, and Ringworm. By WALTER DICK, M. D., &c. Glasgow, 1838. 8vo. Pp. 68.

Dr Dick regarding the characters of *Porrigo* as of contagious origin and propagation, difficulty of cure, and alteration of the appearance of the hair, distinguishes the disorder so characterized into four forms, *Porrigo lupinosa*, the *Porrigo scutulata*, the *Porrigo furfurans*, and the *Porrigo decalvans*. He says nothing as to the kind or form of cutaneous inflammation which it induces, but he believes that these four species originate in only two different structures or sets of organs;—and is inclined to think that porriginous eruptions may be reduced to two heads, viz. porrigo originating in the sebaceous glands, and porrigo originating in the structure producing the hair.

The sebaceous follicles, he describes first as they are seen in the skin of the cow. In this animal he represents them to be yellowish in colour, very similar to the Meibomian glands, though smaller, and with their central canal or duct, not a short sac but continuous with the piliparous cyst. Each piliparous cyst he further represents to be surrounded at its summit by one of these follicles, the follicle being on the outside of the double piliparous sac. To another peculiarity he further directs attention. Interspersed among the short hairs are many long strong ones, the roots of which are enveloped by two cysts, an outer thick one fibrous in tissue; and an inner of delicate translucent tissue. Between these two cysts is situate an erectile vascular tissue, from which when divided a drop or two of blood escape. The sebaceous follicles belonging to these coarse hairs, he represents to be smaller than those surrounding the fine hairs; and in place of lying outside of the fibrous cysts, they are situate between the fibrous and inner cysts, being attached principally to the former.

The sebaceous follicles of the human skin are smaller, less complex apparently in structure, yet more difficult of examination. Their relative situation, however, is the same. They are best seen at the roots of the *cilia* or eyelashes; elsewhere they are smaller but the same in structure. On the nose, where their orifices are perceptible, especially in males, delicate or rudimental hairs are seen issuing from many of their orifices, from which also, by the sides of the hairs, sebaceous matter, he adds, may be expressed. This circumstance he regards as a clear proof that the hairs pass through the centres of the follicles, and that the piliparous cysts and sebaceous follicles have a common outlet.

In describing the anatomical characters of the dermal ends of the hairs, Dr Dick repeats, apparently without being aware of the fact, the circumstance originally mentioned and delineated by Mascagni, that the dermal ends of the hairs are bent on themselves, so as to resemble the letter J or *J*.—Mascagni in the plates of his *Prodromo della Grande Anatomia*, compares them to the tops of the figures employed in marking musical notes in score, (terminano a foggia del capetti scolpiti in cima delle note musicali ed impiantansi nel pannicolo adiposo,*) implanted in the subcutaneous adipose tissue.

The dermal end of the hair, which is for a short space hollow and soft or pulpy, is implanted in a small globular dark-coloured body in the subcutaneous tissue, the *monticulus* of Duvernay. This Mascagni has also described under the name of *capetto*, or little head of the bulb of the hair. Dr Dick, like most of his predecessors, allows each hair to be provided with two sacs; an inner one, thin and delicate, closely applied to the hair, and an outer, thicker and stronger, not so closely connected with the former but that it is easily separable. Morbid action in either, especially when terminating in effusion of fluid, is liable, he thinks, to interrupt nutrition and cause it to be detached.

1. *Porrigo Lupinosa*, the lupine-seed scall, is represented by M. Mahon to originate in the sebaceous glands, the secretion from which, when indurated, forms the cup-shaped scabs, like lupine seeds in hollows; and in this Dr Dick agrees with him. *Porrigo lupinosa*, he observes, when seen at the commencement, appears in the form of small yellow points with depressed centres (*achores, favi,*) almost invariably traversed by hairs. Their contents are from the first consistent and concrete. They enlarge slowly, seldom exceeding three or four lines in diameter; but in rare cases they attain the size of a sixpence. They are firmly imbedded in the skin, retain the circular form with raised edges and cup-like centres, containing, when of old standing, a powdery whitish yellow substance. Though arising distinct, they in the course of the disease coalesce.

Baudelocque, following the opinion of Bichat, Meckel, and others, denies the existence of sebaceous follicles in the scalp, and hence places the seat of *Porrigo lupinosa* in the piliparous cysts; and Mr Plumbe, from each of the pustules being traversed by a hair, believed that the hairs perform an important part in their formation. Dr Dick, however, who thinks he has seen sebaceous follicles in the scalp, argues that the disease is primarily seated in these follicles;—and he mentions, as confirmatory of this view, a preparation consisting of a small portion of the scalp inclosing an incipient lupine-like scab, taken from a patient who died of fever, and who had for a considerable time before death been affected with the lupine-like scall. In this preparation the scab is seen still covered by the cuticle. Below, it appears to be inclosed in a membrane, and a hair invested with its double cyst, apparently in a healthy state, is seen passing through its centre. In short, the scab occupies exactly the situation of a sebaceous gland, and appears to be merely a sebaceous gland distended by a concrete secretion. He adds, that when a lupine-like scab is removed, it is not succeeded by a similar one, but by one of an irregular form, without the peculiar cupped shape, —a circumstance which he ascribes to the sebaceous follicle having been destroyed during the developement of the primary scab,—we presume by the inflammatory process; and consequently he regards the fact now stated as an additional proof of the truth of his hypothesis.

The frequent permanent baldness ensuing in this disease he ascribes to destruction of the sebaceous follicles, piliparous cysts, and bulbs.

2. *Porrigo lupinosa conferta*, (*Porrigo scutulata* of Willan and Bateman,) he ascribes to the same origin, and regards as a mere variety of the common lupine-scall, occasioned by the *achores* arising in closely set crowded patches, in which the mutual pressure prevents the formation of the characteristic cup-like appearance. Alibert regarded it as essentially the same as *Porrigo lupinosa*; and the author who follows this view proposes, as a distinctive name, the agnominal epithet *conferta*.

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* Prodromo della Grande Anatomia, Tavolo, I. page iii. Firenze, 1819.

The separation and altered appearance of the hair in both forms of *Porrigo lupinosa* he deems their most characteristic feature.

As the two eruptions now described are, he thinks, liable to be confounded with the mask-scall (*Porrigo larvalis*) of Willan, and the honeycomb scall (*Porrigo favosa*) of Willan, each of which he refers to *Impetigo* or tetter, under the names of *Impetigo larvalis* and *Impetigo favosa*, he gives a description of each, which it is unnecessary to repeat. They are distinguished from the true porriginous eruptions, he says, by their non-contagious nature, by not changing the texture of the hair, or producing *alopecia*, and by their different elementary appearances and subsequent progress.

To *porrigo* originating, as he believes, in the organs secreting and protecting the hair, he refers the two species described by Willan under the names of *Porrigo scutulata* and *Porrigo furfurans*. These he further regards as varieties of the same disease; and he reproduces the description of Mr Plumbe, as that, which, according to him, corresponds most with the result of observation. With this author also, he thinks that the *achores*, usually represented to begin the disease, are neither primary nor necessary lesions. As both these varieties, therefore, commence with the formation of furfuraceous patches, from which the hair falls off and becomes altered in texture, he would either refer both to the common head of *Porrigo furfurans*, or place them both under the same *genus*, by the name of *Alopecia porriginosa*.

He thinks further, in considering the pathology of the disorder, that it consists primarily in subacute inflammation of a specific character, affecting the piliparous cysts and the tissue secreting the hair; and in support of this view he adduces the following facts and arguments.

1. The thin bran-like incrustations frequently seen surrounding the roots of the hairs, consist evidently of a morbid secretion from the pilous cysts.

2. The hairs drop from the affected parts, while those which remain are like tow,—white, delicate, and unhealthy.

3. In extracting the hairs from diseased parts, the bulbs are occasionally brought with them; and these are then generally of an unhealthy aspect.

Therapeutics.—In conducting the treatment, Dr Dick proceeds on the principle that the different forms of true *porrigo* seldom rise from constitutional derangement, and are generally local in their origin. As a first application, he recommends poultices and frequent ablution with tepid water, under which alone some cases will recover altogether.

With regard to removal of the hair, he thinks evulsion is useful when hairs are lying loose on the skin, or appeared shrivelled or parched,—in other words, are dead or diseased, and when the hairs can be extracted without pain. But, on the other hand, whenever evulsion causes pain, he thinks the practice is detrimental, and ought not to be followed. He recommends, instead of indiscriminate evulsion, excision of the hairs by shaving the scalp from time to time, when the skin is not tender, and when it is so sore and raw as to render this process painful, he advises to keep the hair cut short by the scissors.

The application of strong sulphuric acid over the affected parts, followed after a minute or two by ablution with tepid water, as practised by the late Mr Plumbe, he also recommends, in the *Porrigo furfurans*, *scutulata*, and the early stage of the *Porrigo lupinosa*.

When there is much irritability of the scalp, and pustular inflammation is considerable, he recommends, besides poultices, slightly astringent lotions, or some desiccative ointment, as that of oxide of zinc, superacetate of lead, or the moon-seed berries, (*Cocculus suberosus*, Decand.) In *Porrigo lupinosa*, after the scabs have been softened and renewed, he finds benefit result from an ointment consisting of from ten to twenty grains of the red oxide of mercury carefully rubbed with one ounce of fresh butter.

In the furfuraceous ringworm, solutions of nitrate of silver, or lotions containing sulphuret of potass, liquor of potass, or tincture of muriate of iron, answer well. Dr Dick employs with good effect an ointment consisting of a drachm of magistery of bismuth, (the di-nitrate,) mixed with an ounce of lard or simple cerate, a little of which is applied night and morning, the parts being previously well washed.

The therapeutic powers of the deutioduret of mercury, ioduret of sulphur, and iodide of carbon, all of which have been much recommended, he thinks are over-rated.

An ointment found also successful consists of one ounce and a-half of laurel oil (*Oleum Laurinum*), half an ounce of sulphur, and ten grains of camphor carefully mixed.

The secret preparation of the brothers Mahon, which has been found to consist of charcoal with weak quicklime and subcarbonate of potass in variable proportions, is manifestly essentially pure potass, rendered more or less inert by admixture with the charcoal. Of this there are three forms, varying in strength; one, the feeblest, employed generally as an ointment; the second stronger, applied as a depilatory powder; the third, the strongest, used both as a depilatory powder, and in the form of ointment, for a fortnight or month.

Good nutritious food, with attention to cleanliness, are also strongly recommended as contributing powerfully to the accomplishment of a perfect cure. In some instances even it may happen, Dr Dick properly observes, that, under the best directed treatment, general or local, all efforts are unavailing, and the disease remains stationary until some favourable, yet imperceptible, change in the constitution is effected, when the disease slowly, but steadily, and completely disappears.

Cause, Statistics, and Treatment of Bronchocele. (From a Treatise on English Bronchocele, by James Inglis, M. D., Physician to the Ripon Public Dispensary, &c. 1838.)—After giving a short description of the thyroid gland and bronchocele, Dr Inglis proceeds to consider the various causes of the disease assigned by different authors. That bronchocele is not caused by snow water, he conceives, is proved by the facts, that in Greenland and Lapland, where it is commonly used, the disease is never met with; that in Scotland and Westmoreland, where the mountains are higher, and the snow more abundant than in Derbyshire, it is almost unknown; and that at Edmonton Dr Richardson found it attacking those only who drank from the waters of the river, while those using melted snow or water from the small rivulets flowing through the plains were exempt from it. The next most commonly received cause of bronchocele has been the earthy impregnation of the water. The facts in favour of this view are, that in Geneva, the disease is speedily induced by the use of the hard or pump water of the lower streets, that in Nottingham, where the disease prevails, the waters are impregnated with the sulphate of lime, in Derbyshire, with the supercarbonate of lime, at Studley and around Ripon with the supercarbonates of lime and magnesia, and a small portion of the sulphate of lime; that in the valleys of the chalky parts of Hants and Sussex the disease is of frequent occurrence, &c. After answering the objections made to this theory, and examining some other views which he considers untenable, Dr Inglis comes to the conclusion, that in all districts where bronchocele prevails, lime, in some form or other, is to be detected in the waters. "I cannot say, however," he continues, "that in all lime districts goitre prevails; on the contrary, I know that it does not in many places, where the blue vitrified mountain limestone is very abundant. Nevertheless, I think I am correct in supposing, that the presence of the *magnesian* *limestone* always predicts the co-existence of the disease. Take, for example, that ridge of magnesian limestone running from north to south through the centre of Yorkshire and margining the shires of Derby and Nottingham. All along that line we have goitre to a very great extent; whereas on our diverging to either side, the disease is found to diminish. The towns situated on that ridge are Nottingham, Alfreton, Chesterfield, Rotherham, Ackworth, Pontefract, Abberford, Wetherby, Knaresborough, Boroughbridge, and Ripon. After this the magnesian limestone dips, then reappears in the county of Durham; it continues its course almost due north from Darlington to South Shields, where at Tynemouth it meets the sea. In many of these towns I know goitre prevails, in the others I should suppose it did, excepting where we approach within the influence of the sea, when the morbid action would be counteracted." To this he is inclined to add hereditary predisposition, and perhaps the sympathy of the thyroid gland with the uterus.

Respecting the statistics of this disease, Dr Inglis cites the following facts. In Germany, the number of males attacked by the disease is stated to be about 15 per cent. Prosser mentions a village in Derbyshire where there were fifty girls labouring under the disease, and he never knew a single instance of it either in a man or a boy. At the Hampshire County Hospital, in ten years, 49 goitrous patients were admitted, one of whom only was a male. At the Chichester Dispensary and Infirmary, of 70 admitted in nine years, two were males. "At Bishopton Grange, near Ripon, the number of goitrous cases treated by Dr Paley, within the last nine years, amounts to 111. Of these six only were males." The patients of the Ripon Public Dispensary for three years were 19, of whom two were males. At Pontefract Dispensary, of 60 patients two were males. These returns of course do not show the proportion of the sexes affected with bronchocele, though they enable us to form some notion of the proportion of those requiring relief for the disease. The following table exhibits the proportion of bronchocele to other diseases demanding medical treatment:

Institutions.	Total cases.	Bronchocele.
Bishopton, (10 years,)	5054	111
Ripon, (3 years,)	993	19
Halifax, (about 22 years,)	62228	242
Ackworth, (7 years,)	4139	60
	72414	432

In the treatment of bronchocele Dr Inglis prefers, even to the weakest tincture of iodine, an aqueous solution of the hydriodate of potassa, hydriodate of iron, or iodine, rendered more soluble by the presence of a salt, such as the nitrate of ammonia, the hydrochlorate of soda, or the hydriodate of potassa. He supposes, however, the ioduret of iron to be the best, in consequence of the influence which he, in common with Dr A. T. Thomson, conceives it exert as a tonic. Should the tumour be soft, small, and recently formed, the internal use of this will be sufficient. If, on the contrary, it be hard, large, and of long standing, he recommends an ointment, composed of half a drachm of the hydriodate of potassa, a scruple of iodine, and an ounce of axunge, to be rubbed in twice or thrice a dry. If it resist this treatment, he has seen great benefit from the application of half a dozen leeches three or four times, at intervals of four or five days, the ointment being again rubbed in when the wounds caused by the leeches have healed. Should still no abatement in the size of the tumour take place, at the end of three weeks, he recommends us to intermit the remedies for a short time, apply a blister, and, in a fortnight, to have recourse again to the medicines. In obstinate cases, electricity often stimulates the gland to activity, and assists the action of the iodide of iron.

Vicarious Menstruation. (From Dr Churchill on the Principal Diseases of Females, 1838.) A case of this kind occurred to Dr Law in Sir P. Dun's Hospital, Dublin.—" Mary Murphy, aged 21, had been in bad health and subject to distressing headachs previous to her admission into hospital. During her stay she missed a menstrual period, and was shortly after attacked with hemorrhage from both ears, which was repeated at intervals of from three to five nights, each lasting some hours. Very often from fifteen to twenty ounces of blood were collected, which did not coagulate, neither did blood taken from the arm. By suitable treatment the system was strengthened, and the intervals between the bleedings increased, but the discharge, though thus modified, still persisted, and she left the hospital. After her departure, she was attacked with vomiting of blood, to a certain extent superseding the evacuation from the ears, which only occurred once or twice a month. She returned to the hospital in consequence of this new symptom, and continued in the same state for some time, with some effect at menstruation; but at last the sanguineous discharge was supplanted by severe diarrhœa, which, having relieved the other complaints, was itself cured by opium. The quantity of blood lost must have been enormous, and it is not a little remarkable, that none of the *sequelæ* of severe hemorrhage occurred."

Bad effects of warming close Chambers by means of Choffers containing burning Charcoal. Joyce's Urn.—Though it is long since chemists demonstrated the deleterious effects of burning charcoal in close chambers, for the purpose of warming them, the noxious consequences of this mode of heating apartments appears to be still not generally understood. It is a well-known fact that many persons in France and other parts of the continent warm, every night before going to rest, their bed-chambers, by means of a choffer (*poele*) of burning charcoal. This practice has been very commonly adduced to show that it is harmless. But the fact is not adverted to, that, after the chamber has been warmed, the choffer is removed or extinguished. Nor do persons advert also to the counterpart of this fact, that in cases where the choffer is allowed to remain, alarming and very often fatal accidents ensue. Thus scarcely a winter passes over in Paris without some person being found dead in his chamber in the morning, in consequence of the charcoal choffer not having been removed or extinguished; and in very cold winters, not uncommonly several of these accidents ensue. It is also known that the certainty of this practice being followed in the course of a few hours with stupefaction and death, is so familiar to many, that it has been often of late years resorted to as a means of suicide. Some two years ago, two young persons attached to each other by a violent passion, in consequence of some opposition from friends, determined on self-destruction, and, to make it the more interesting, to expire in each others arms. The method they adopted was to retire to bed in an apartment warmed by the charcoal choffer. It succeeded perfectly. Both were found dead in the morning, in a state of the most perfect repose and composure of features and limbs. In another instance, one person only expired; and the other was found in a state of great insensibility, with the remaining embers of life still flickering.

Notwithstanding these obvious and well-known facts, a singular attempt was made last winter to warm apartments by means of an urn in which charcoal was burned; and the apparent harmlessness of this method of warming, with its elegance, and the small quantity of visible smoke, procured for it great attention and many advocates. Joyce's urn, so named from the individual who suggested the method, was forthwith recommended as a means of obviating altogether the noxious effects of burning charcoal; and while some pretended to find these anti-asphyxiating properties in the construction of the urn, and others in the mode in which the charcoal was prepared, the method was eulogized as one of the great discoveries by which fuel was to be economized, and any degree of comfortable warmth in our apartments insured. Even the authority of Lord Brougham was adduced to prove the harmlessness and the efficacy of the contrivance; as it was stated that his Lordship had travelled a long journey in a cold season of the year, yet with perfect comfort and in full possession of his faculties, with one of these urns of Mr Joyce in the carriage, and was at the close of his journey in as perfect enjoyment of sensibility and intellect as ever he had been at any period of his life. What was the exact state of the fact in this case we know not. But we know what are the effects of breathing air heated by the urn of Joyce.

All these miraculous statements attracted the attention of our chemical friends in Paris, who knew well that charcoal must be charcoal, that its combustion must give rise to carbonic acid gas, and that, if living beings are within the sphere of its agency, the respiration of the gas is followed by insensibility and death. As it had been asserted, however, that the charcoal, which indeed was absurdly enough designated English charcoal, was prepared in a peculiar way, and that it was impregnated with potass, and thereby that the carbonic acid was absorbed as soon as evolved, Gay-Lussac made it the subject of experiments, and reported the result to the Institute.

It turned out that the English charcoal contained no greater proportion of potass than is found in the wood of all charcoal; that this was inadequate to absorb the carbonic acid; and that, in point of fact, the carbonic acid was formed as usual.

The latter fact, Sir John Robison demonstrated most satisfactorily in the presence of the Royal Society, as to the gas formed by one of Joyce's urns. Having procured one of these from Messrs Baildon, in whose shop it had been used for some time, Sir J. Robison showed, that when in full action, if a lighted taper were held over it, the flame was immediately extinguished. There can be no doubt, that, if a living animal were held in the same situation, it would soon cease to breathe.

The method seems elegant, but it is neither scientific nor safe. Though no visible smoke ascends from the urn, yet a current of hot air is seen quite perceptibly issuing from it with minute fragments of ashes, and small atoms of charcoal borne floating in the air. The only difference between this kind of combustion and that from wood, coal, or any ordinary fuel, is, that there is little or no visible smoke. In other words, the smoke which is formed by an ordinary coal or wood fire, and which consists of small quantities of charcoal in minute subdivision, is not formed because the materials have been destroyed by the previous conversion of the wood into charcoal. The urn of Joyce would be perfectly safe, if placed in a chimney with a vent, where the carbonic acid gas could be carried out with the heated air. But this very circumstance would, as it does in our common fires, prevent the urn from heating the apartment so thoroughly as it does, where there is no vent. Its power of heating rapidly and perfectly depends upon there being no vent or chimney to allow the heated air to be conveyed out of the apartment. The formation of smoke, therefore, in our ordinary fires, which renders the necessity of a chimney and vent obvious and urgent, is the visible indication, that prevents us from being suffocated by the carbonic oxide and carbonic acid, formed during the combustion of ordinary fuel.

We have been led to direct the attention of our readers to this subject, partly by perceiving the erroneous notions prevalent on the subject, and partly by observing, from time to time, most frightful accidents produced by attempts to warm,—by means of contrivances not so elegant, perhaps, as the urn of Joyce, but acting on the same principle, close apartments, that is, apartments without chimneys, or in which the vent is obstructed. In the following instance of an attempt made to heat an apartment in this manner, it destroyed two persons and nearly killed a third.

" An inquest was held here (Bristol) yesterday, at the White Lion, St James's Back, on the bodies of George Brown, aged 24, and John Brooks Knight, aged 17, prisoners in Bridewell, who were found dead in their cell, on Thursday morning last. The coroner having charged the jury, they proceeded to view the bodies; that of Brown, with the exception of a few red marks on the arm, presented no unusual appearance. Knight's face was much swollen and disfigured, and blood had issued from his nostrils. (Brown was committed January 26th, for vagrancy, and Knight, on the 28th, for assaulting his grandmother.) Having viewed the bodies, the jury proceeded to the infirmary of the Bridewell, in order to take the deposition of the prisoner who was rescued from the cell alive, and who is now slowly recovering.

" John Belcher sworn.—I was a prisoner in Bridewell on Wednesday last. By the rules of the prison we must retire to our cells at some time between 5 and 6 o'clock; I retired soon after 5 o'clock; the deceased came in about half an hour afterwards; we had slept together in the same cell five or six nights before; it was the first cell on the right hand on the ground floor; there was an iron bedstead in the cell, but we did not sleep on it, because it was not large enough; I put the beds on the floor; I did so for our greater comfort, and not by desire of the gaoler; we had two beds and bedding for three persons, which consisted of a woollen rug under us, and three rugs to cover us; Brown slept in the middle, I slept next to the wall, and Knight nearest the bedstead; Brown complained to me that he had a cramp or pain across the stomach, but I thought it was the cold, and I said, ' Lie down, and go to sleep, and you will be better;' I did not call for assistance, because I thought when he went to sleep it would be nothing; before I got into bed I shut the window and door; the turnkey locked us in about 6 o'clock; he asked if we were all there, and I said yes, three of us; he looked at us, and we made no complaint; it was before that Brown spoke of the pain in his stomach; when I entered the cell I found no smell; it was warmer than usual: there was a fire in a pot on the elevated part of the bedstead; the clothes were rolled up at the other end; the turnkey took away the fire when he locked us up; I cannot tell whether it was a coal fire, it was a red fire, and not a blazing one; I had never seen a fire there before; I had complained to the turnkey of the cold; the walls were so damp that we could sweep the wet off them with our hands; he said he would warm the cell, and that was why we had a fire; I was in the cell an hour before the fire was removed, but was not locked in; when the turnkey took away the fire the window was closed, and neither it nor the door was opened afterwards; the turnkey did not recommend it to be left open; there was no smell in the cell, either of smoke or otherwise; it was quite agreeable to us to have the fire there; we were three in a cell at our own request, for the purpose of being warm; Brown complained of his stomach before, but I thought nothing of it; I went to sleep about 8 o'clock, I cannot tell when they did: I awoke in the night, and found myself unable to move or speak; I can give no account of the illness or death of my companions, as I was insensible, and did not know they were dead till I was told of it.

" By the jury.—I felt all over pains, and cramps in my thighs and arms. The jury now returned to the White Lion, where

" John Kelly deposed as follows:—I was confined in the Bridewell on Wednesday last; the governor, Mr Williams, gave me an old tin-pot (now produced) in which sticks and coals were burning, and desired me to carry it into the cells; I took it into six cells, and let it stay about a quarter of an hour in each: while it was in the cell I shut the door and windows, and when I took it out I opened them again; the last cell to which I carried it was that in which the prisoners died; I took it there about 10 minutes before 5; I did not place it on the bedstead, but on the ground close by.

"By the jury.—I let it stay there about 20 minutes, and then moved it out and opened the door and windows; I am quite certain I did so three-quarters of an hour before the prisoners went to bed; after I had taken it out, I put the pot in the kitchen adjoining the cells; nobody was present when I did so.

"Coroner.—Belcher states that he saw the pot there when he went to bed; can you account for that? Witness.—If that is the case, they must have moved it again when they went to bed; Mr Williams invented it, as the prisoners complained of cold, and that when they awoke in the morning the rugs were always wet; the fire was nearly out when I put it in the kitchen; I was the first that saw the dead men in the morning; they did not come for their bread as usual, and the turkney told me to call them up; when I called them they did not answer me; I opened the windows and saw Brown and Knight lying apparently dead, and Belcher all doubled up and groaning; I called the turnkey, and sent for the doctor, who arrived in about 10 minutes.

"Robert Lewis and Richard Burnam gave similar testimony as to finding the bodies.

"Thomas Williams deposed that he was keeper of Bridewell; the sleeping cells were very damp; you could wipe the water off the walls in the morning; the prisoners complained of cold, and one of them said if he could get a pot of fire he could cure it; he (witness) got him one, and it was used in the cells in another ward, and the plan succeeded very well up to Wednesday; Kelly asked him to let him use it, and, in order to add to the comfort of the prisoners, he let him do so; the deceased prisoners and Belcher were confined in the same cell; it measured about 6 ft. by 8 ft., and about 9 ft. high; it had a wooden door to shut close, and a grated window with shutters, which may be opened or closed by the prisoners at pleasure; it is always usual to put three in a cell when the Bridewell is crowded; it was so on Wednesday; our orders were never to let two sleep together, but always three or one.

"By the jury.—Had seen the men two or three times in the day; all the cells are damp; four are so bad, I do not put men into them.

"Re-examined.—I have never known prisoners' health injured by the damp.

"By the jury.—I am of opinion that the cells are not fit for men to sleep in, and therefore I tried to warm them, as it had succeeded in the other parts of the Bridewell; I do not know that anything has been said about it to the proper authorities; it might have been mentioned in conversation; I have been allowed coal since the 21st of November.

"By the Coroner.—The magistrates have been to Bridewell since these deaths, and, I believe, warm air is to be introduced.

"Thomas Moon, turnkey, deposed to locking up the prisoners: there was no fire-pot in the cell at the time; he saw it in the kitchen as he went in to lock up. He also deposed to missing the prisoners at the distribution of bread in the morning, and sending for them. Kelly came back and said that one or all of them were dead; he went to the cell and found Knight and Brown dead; he took Belcher out and fetched the surgeon, Mr Ruddock.

"By the jury.—Has heard prisoners complain of the dampness of the cells, and that they had found their rugs damp in the morning; had not known their health suffer; one of them asked him to get him the kettle, and he would stove the cell himself, and he did so.

"Mr Ruddock, surgeon, deposed to having examined the bodies; the appearances were those commonly produced by suffocation; burning stick and coal in a small chamber without a chimney would probably produce carbonic acid gas, which, as it is heavier than atmospheric air, would occupy the lower part of the cell, so that a person may stand upright without being affected, and yet become insensible upon lying down; carbonic acid gas cannot be breathed without danger to life; I have no doubt the deceased prisoners were suffocated by carbonic acid gas, produced by the pot of coals.

"By the jury.—It is likely the room would have got clear by a continued draught of air, but I cannot say in what time; I do not think the cells being damp would have accelerated death; Belcher was nearly dead when I saw him.

"The coroner having summed up, the jury said they did not consider any blame attached to the keeper of Bridewell or his officers, who appeared to have acted with great humanity, but it was their wish to record their opinion that the cells of Bridewell are not fit for the reception of any human being. The coroner suggested that it would be better for him to wait on the mayor and express their opinion. The foreman said they wished their opinion to go forth to the public in connexion with their verdict, and they therefore found that 'they died from suffocation, caused by the carbonic acid gas, produced by fire intended to warm the cell, and that the Bridewell is not in a fit state for prisoners to sleep in.'"—(*Third Report of Inspectors of Prisons.*) P 13.

On the Use of a Combination of Iodine, Mercury, and Zinc in Syphilitic Ulcerations and Sibbens. (From a Treatise on Bronchocele, by James Inglis, M. D., &c.)—The preparations of zinc have long been employed in the treatment of ulcers of an indolent or scrofulous character. Sometime ago, Dr Inglis discovered that the biniodide of mercury is soluble in an aqueous solution of the hydriodate of zinc. This solution, he affirms, while it possesses all the properties of the salts of zinc, exhibits also the characteristic properties of iodine and mercury. He conceives, therefore, that its use is indicated in syphilitic ulcerations, and in that singular disease called sibbens, which he erroneously supposes to be peculiar to the south of Scotland.

MISCELLANEOUS.

GRADUATIONS AND SURGICAL EXAMINATIONS.

Medical Graduations at Edinburgh.—On the 1st of August 1837, the Senatus Academicus of the University of Edinburgh conferred the degree of Doctor of Medicine on the following gentlemen, in number ninety-eight, after having gone through the appointed examinations, and defended publicly their Inaugural Dissertations.

OF SCOTLAND.

Jn. Anderson, on Albuminous Urine as an Indication of Disease.

James Brands Allan, Observations on some of the most Predominant Diseases of the African Islands.

Charles Bowman Alexander, on Angina Pectoris.

Wm. Bowie, on Remittent Fever.

Wm. Paterson Banks, on the Physiology of the Mental Faculties.

Daniel Curdie, on Aneurism of the Aorta.

John James Drysdale, on the Theory of Inflammation.

George D. Dods, on Rheumatism.

Archibald Douglas, on the Pathology and Treatment of Dropsy.

Edward Gibbons, on the Chemical

Characters and Medical Treatment of Urinary Calculi.
Andrew Graham, on Aneurism.
T. Graham, on Gun-shot Wounds.
Thomas Hamilton, on Respiration and Animal Heat.
A. H. Howe, on Inguinal Hernia.
William Hutcheson, on Imbecility of Mind, with Preliminary Remarks on the Classification of the different forms of Insanity.
Chas. Murray Henderson, on Croup.
Alexander Jackson, on the Effects of Heat on the Human Body.
James Kilgour, on Digestion.
Js. Logan, on the Nervous System.
J. S. Mackintosh, on Scarlet Fever.
Alexander Manson, on Abscess.
J. Macaulay, on the Effects of Vegetation upon the Atmosphere.
G. Morison, on the Atomic Theory.
A. Mitchell, on Hospital Gangrene.
J. Macleod, on Hospital Gangrene.
Allan Ranald Macdonald, on Ophthalmia, including its Origin, Progress, and Decline in the Army, during and subsequent to the Egyptian Campaign.
Donald Mackenzie, on Ulcers and Hospital Gangrene.
George Murray Porteous, on Delirium Tremens.
James Peter, Remarks on Arsenic and its preparations.
G. R. Playfair, on Continued Fever.
Thomas Renwick, on Tropical Dysentery.
John Ruxton, on Peritonitis.
John Rutherford Russell, on the Respiratory System of Nerves, considered as the Vehicle of General Sympathy.
Henry Roy, on Dysentery, or Bloody Flux.
Andrew James Scott, on the Pathology of the Laryngismus stridulus.
Eben. Skae, on Tic Douloureux.
John Phin Smith, Observations on the Blood in Health and Disease.
Donald Sinclair, on Hydrocele.
D. Thomson, on Inguinal Hernia.
Alexander Wilson, on Purulent Ophthalmia.
George Murray Webster, on the Treatment of Fractures.

FROM ENGLAND.

Magnus Francis Lynch Andrews, on the Sedative Effects of Alum.
George Atkin, on Superposition, and the value to be assigned to Zoological and Botanical Characters in determining the Age of Rocks.
Edwin Adolphus, on the Pathological Characters of the Urine, as indicating the presence and extent of Disease.
W. Budd, on Acute Rheumatism.
Anthony Cæsar Fitzroy Colclough, on Hæmoptysis.
John Chadwick, on the Nature and Cause of the Respiratory Motions, and especially on the cause of their first commencement in new-born Children; with such remarks on the Static Test of the Lungs for Child-murder, and on Still-born Children, as arise out of the subject.
George Cookson, on Typhus Fever.
Henry Andrew Dawe, De Physiologia Digestionis.
Francis Cornelius Goodwin, on the Physiology and Pathology of Menstruation.
James Dimblé Henwood, on Puerperal Fever.
John Morgan Hopkins, on Chlorosis or Green Sickness.
William Jepson, Observations on the Common, Continued, or Typhoid Fever of Edinburgh; with a brief account of the principal Anatomical Characters of the prevailing Epidemic.
Frederick C. Jones, on the Origin and Pathology of Typhus Fever.
Henry Lonsdale, An Experimental Inquiry into the Physiological Action of the Hydrocyanic Acid; with an Examination of its Therapeutical Properties; and Observations on the Mode of Treatment in cases of Poisoning with this substance.
William Lloyd, on the Nutrition of Plants, and the Influence they exert on the Atmosphere.
W. Forbes Laurie, on Pericarditis.
Charles Maitland, on Continued Fever.

Hy. Mapleton, on Burns, and Contractions occurring after them.

John Percy, Experimental Inquiry concerning the presence of Alcohol in the Ventricles of the Brain, after poisoning by that liquid; together with Experiments illustrative of the physiological action of alcohol.

John Ryan, on the Philosophy of Medicine.

George Pyemouth Smith, A Comparative View of Lithotomy and Lithotrity.

Arthur James Skrimshire, Observations on Chronic, Remittent, and Intermittent Fevers, and on the tendency to Remittent and Intermittent Paroxysms in various diseases, both acute and chronic, as occurring in marshy or fenny districts.

William Taylor, on the Relative Effects of Animal and Vegetable Diet on the Physical and Moral condition of Mankind.

Henry Umpleby, on Vaccination.

A. Willmott, on Intermittent Fever.

Francis I. White, on the Geographical Distribution of Plants.

Matthew Alexander Esson Wilkinson, on Pneumonia.

FROM IRELAND.

Richard Ellis Bateman, on a new Auscultatory Sign observable in Phthisis in its incipient Stage, illustrated by cases; and some General Observations on the Causes, Symptoms, and Treatment of this Disease.

John David Blake, on Croup.

Archibald Borland, on Scarlatina.

Matthew Broderick, on the Examination of Patients.

Arthur Cheyne, on the Causes of Disease among Soldiers.

Richard Chambers, on Rheumatism.

Charles William Mitchael Crooke, on the Treatment of Secondary Symptoms.

Js. Harnett Dowling, on Empyema.

Samuel Torrens Haslett, on Hydrophobia.

John Johnston, on the Influence of the Mind as a Therapeutic Agent.

Edward Kellett, on Amenorrhœa.

Thomas James Layton, on Phthisis Pulmonalis.

Prancis M'Minn, on Gastritis.

Patrick O'Hea, on Indigestion.

Richard Riggs, on Dropsy, with some Remarks on the Medicines used in the Treatment of that Disease.

Anthony Stanton, on Emphysema.

James Stewart, on Ergot of Rye.

Henry Shiel, on Delirium Tremens.

E. Vaughan, on Ephemeral Fever.

FROM ABROAD.

Thomas John Coghlan, from Ceylon, on Dysentery, particularly as occurring in the East Indies.

Arthur Fisher, from Canada, on Asphyxia.

Charles Galland, from Genoa, on Dilatation of the Air Cells.

John Forbes Innerarity, from Mobile, on Rubeola.

William John Irvine, from Malta, on the Origin of the Carbonic Acid produced During Respiration.

Henry Gilbert Luttrell, from the East Indies, on Inflammation.

Marianus Martin de Bartolomé, from Spain, on Pericarditis.

Alexander Maclaverty, from Jamaica, on the comparative merits of Lithotomy and Lithotrity.

Alexander Charles Macrae, from Demerara, on the Origin, Composition, Natural History, and Medicinal Effects of Mineral Waters.

Alexander Ross Morton, from the East Indies, on Dysentery.

James N. Pinkerton, from Russia, on Sleep and its phenomena.

Surgeons' Hall, Edinburgh, 1st September 1838.—Since 31st August 1837, the following Gentlemen have offered themselves as Candidates for the Diploma of the Royal College of Surgeons of Edinburgh, and, after producing satisfactory evidence that they had completed the course of study prescribed by the College, have been admitted to examination, and found fully qualified to practise the arts of Anatomy, Surgery, and Pharmacy, and have received Diplomas, as Licentiates of the College, accordingly.

Scotland.

James Summers,
George Wilson,
Walter William Miller,
John Rattray,
James Hay Blackwell,
Andrew Paton,
James Edwards,
Alex. G. MacGillivray,
Joseph Laurie,
Thomas Davidson,
Andrew Graham,
John Niven,
Ford Littlejohn,
Thomas A. Douglas,
John Anderson,
Charles B. Alexander,
Charles Bowman Gill,
Thomas W. Dawson,
David Russell,
George Williamson,
Neil Mackenzie,
John Davidson,
Colin McColl,
Thomas G. Traquair,
John Taylor,
Alexander M'Donald,
John Aitken,
Robert Anderson,
James Burton,
Gilbert T. M. Martin,
John Dickson,
George Garson,
Francis T. Richardson,
James Smith,
James Laird,
James Cross,
Alexander Grant,
William Craig,
Richard Johnstone,
Robert Pairman,
Thomas Murray,
Andrew Lillie,
Thomas Malcolm,
Ebenezer Robertson,
Alexander Mitchell,
John Paterson,
George Morison,
Alexander Wilson,
Robert Carr Fluker,
Bright Hannah,
John Ruxton,
George Douglas Dods,
David Elliot Wilkie,
Alexander H. Howe,
Archibald Arnott,
Lewis Urquhart,
William Bowie,
William Symington,
Thomas Graham,
David Lyall,
Hugh T. S. Beveridge,
Alexander B. Cleland,
John James Drysdale,
Alexander Manson,
Alexander Stevenson,
Alexander Stewart,
William R. Cockburn,
George Ross,
Hugh Donaldson,
William S. Carmichael,
Charles Forbes,
Duncan M'Rae,
William Leitch,
James Welsh,
Duncan M'Laren,
Daniel Curdie,
Thomas Renwick,
Alexander Logie Spence,
James Fisher,
John Phin Smith,
James Bonar M'Gregor,
James Turnbull,
Robert Steel,
John Millar,
William A. Bryden,
Charles D. Stewart,
Alexander Wood,
Walter Brunton Balfour,
James Kilgour,
William Watt G. Watt,
James M'Gregor,
William Irving Scott,
George W. Thomson,
Francis Wallace Kerr,

England.

Henry Franklin,
Charles Joseph Hanson,
John Pavin Phillips,
James Williamson,
William M'Gill,
Frederic A. MacDougall,
Richard Milnes Pigot,
William Forbes Laurie,
Herb. Henry Mackarsie,
William James Browne,
Richard Barker Hatfield,
Frederick Charles Jones,
Henry R. Madden,
John Ryan,
Henry Umpleby,
Benjamin Howell Yate,
William Jepson,
William Strange,
Hartley Samuel Laycock,
Thomas Bradley.

Ireland.

Alexander Macshane,
James Lindsay,
James Short Thomson,
Eugene C. M'Carthy,
John Sullivan,
Thomas E. Molesworth,
Richard Chambers,
Eccles Gawley,
John Smyth,
Edward Montgomery,
Samuel Torrens Haslett,
John Johnston,
Francis M'Minn,
John White,
Thomas James Layton,
John O'Brien M. Barry,
William Tatlock,
Richard Ellis Bateman,
George Bolster.

Abroad.

Henry Andrew Dawe,
Adams Jewett,
Henry Colebrooke,
George Snyder,
Charles Smith Sellar,
Julius Veronge,
Edward Harriot Jackson,
James Noah Pinkerton.

Extracted from the Records of the Royal College by

Wm. Scott, *Sec.*

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END OF VOLUME FIFTIETH.

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